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# GRAND CANYON OF ARIZONA

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## HEARING

HELD BEFORE THE

U.S. Congress. House

COMMITTEE ON THE PUBLIC LANDS OF  
THE HOUSE OF REPRESENTATIVES

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JUNE 9, 1910

ON H. R. 2258, "GRANTING RIGHT OF WAY OVER  
CERTAIN SECTIONS OF THE GRAND CANYON  
MONUMENT RESERVE, IN ARIZONA, TO THE  
GRAND CANYON SCENIC RAILROAD COMPANY"

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## GRAND CANYON OF ARIZONA.

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COMMITTEE ON THE PUBLIC LANDS,  
*Thursday, June 9, 1910.*

The committee was called to order at 10.15 a. m., Hon. Frank W. Mondell (chairman) presiding.

The CHAIRMAN. Gentlemen, the meeting of the committee was called this morning for the purpose of a hearing on the bill (H. R. 2258), granting a right of way over certain sections of the Grand Canyon Monument Reserve, in Arizona, to the Grand Canyon Scenic Railroad Company. The bill is as follows:

[H. R. 2258, Sixty-first Congress, first session.]

A BILL Granting right of way over certain sections of the Grand Canyon Monument Reserve, in Arizona, to the Grand Canyon Scenic Railroad Company.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the right of way through the public lands and the Grand Canyon National Monument Reserve is hereby granted to the Grand Canyon Scenic Railway Company from a point in section twenty-four, township thirty-one north, range two east, along the rim of the Grand Canyon of the Colorado River to a point in section twenty, township thirty north, range four east; also from a point in section twenty-four, township thirty-one north, range two east, to a point on unsurveyed lands on the brink of Granite Gorge, all situated within the Territory of Arizona; all as more particularly described in the plat and field notes of survey filed by said railway company in the United States land office at Phoenix, Arizona, on the twelfth day of February, nineteen hundred eight; also the station grounds shown on said plat along the line of road described; also the right to take from the public lands and national monument adjacent to the line of said road material, earth, stone, and timber necessary for the construction of said road.

SEC. 2. That if any section of said road be not completed within five years after the passage of this act, the rights herein granted shall be forfeited as to any such uncompleted section of said road.

SEC. 3. That Congress hereby reserves the right at any time to alter, amend, or repeal this act, or any part thereof.

The CHAIRMAN. This bill proposes to grant a right of way to the Grand Canyon Scenic Railroad Company from a point on the rim of the Grand Canyon of the Colorado River, near the El Tovar Hotel, to Grand View Point. The gentlemen who asked for a hearing on the bill are not yet here, but we have here representatives of the Interior and Agricultural departments, and I think it might be just as well to open the hearing by hearing from them. Mr. Potter, are you pretty well acquainted with this locality?

### STATEMENT OF MR. ALBERT F. POTTER, ASSOCIATE FORESTER, DEPARTMENT OF AGRICULTURE.

Mr. POTTER. I am pretty well acquainted with it, Mr. Chairman.

The CHAIRMAN. Well, we will hear from you, then, briefly, in regard to it, and if the gentlemen who are interested in the bill arrive we can hear them on the subject later.



Mr. POTTER. The Secretary of Agriculture has submitted a brief report to the committee calling attention to the important points, I think, and that will probably be a matter of record.

The CHAIRMAN. That report will go in the record at this point.

MARCH 30, 1910.

Hon. F. W. MONDELL,  
*Chairman Committee on Public Lands,  
House of Representatives.*

DEAR SIR: In response to your request of February 14 in reference to H. R. 2258 (granting right of way over certain sections of the Grand Canyon Monument Reserve, in Arizona, to the Grand Canyon Scenic Railroad Company), I find that this bill proposes to grant the railroad company a permanent easement over a part of the Grand Canyon National Monument along the rim of the canyon for the purpose of exploiting the scenery for private gain. It imposes no restrictions and authorizes no official supervision to prevent defacing of natural beauties and wonders by the construction or operation of the road. It would permit the grantee to monopolize many of the most desirable view points to the exclusion of the general public, and would involve the removal from the rim of the canyon of the forest trees, which add much to the scenic effect.

The act of June 8, 1906 (34 Stat., 225), authorizing the President to set aside national monuments, evidently contemplates the preservation of objects of historic or scientific interest, in order that they may be seen, studied, and enjoyed in their natural state. In my judgment, the existence of the proposed railroad, or any railroad similarly located, would be inconsistent with the purposes of this act and out of keeping with the character of the place.

Moreover, I do not believe that any permanent easement should be granted within the borders of national monuments. In this respect they should be placed on a basis similar to that of national parks and all privileges should be granted for reasonable terms of years, subject to regulation and control by the proper department to prevent injury to the objects of interest and to protect the traveling public from extortionate charges arising from exclusive franchises.

The Forest Service has caused to be prepared with great care working plans for a system of roads and trails to render all practicable parts of the monument accessible to the public. An important feature of these plans is a road which is to follow the southern edge of the canyon far enough back to preserve the fringe of trees along the rim.

For a considerable distance the route of the proposed railroad would come in direct conflict with this road.

A bill has been introduced in the House by the Hon. Ralph H. Cameron, Delegate from Arizona (H. R. 20819), to appropriate \$110,000 to be expended under the direction of this department in carrying out these plans. This bill has been referred to the Committee on Appropriations, and it is hoped will become a law at this session. I therefore recommend that the bill granting a right of way to the railroad company should not become a law.

Very respectfully,

JAMES WILSON, *Secretary.*

Mr. POTTER. The important point here, it strikes me, is that this national monument was set aside by a proclamation of the President within the boundaries of the Grand Canyon National Forest for the purpose of preserving the scenic beauty and the natural features of the Grand Canyon, and that places upon the Department of Agriculture the responsibility of preserving the canyon as near as possible in its natural condition; so that we do not look with favor upon anything in the nature of an exploitation of its resources, or any disturbance of the natural features to a greater degree than is necessary to make it accessible to the public. We have already done considerable improvement work there, and have plans for other improvement work which we expect to do in the future in the way of trails and roads to make it possible for the public to reach the points of scenic interest. Therefore we do not look with favor upon the construction of a railroad there along the plan proposed in this bill, which would necessarily cause the removal of a good deal of timber from the brink



of the canyon, and we think would interfere seriously with the scenic effects. Then, also, the bill proposes to grant a permanent right of way to this company, and I do not believe that any permanent right of way should be granted which would take away from the Government the right at certain intervals to revise the terms of the agreement under which the road is operated or which would not require the grantee to comply with such stipulations as were necessary to protect the interests of the national monument.

The CHAIRMAN. Have you examined the provisions of this bill? I am unable to determine from a hurried reading of the bill whether this right of way is simply along the brink of the Grand Canyon, or whether it contemplates a scenic railway down into the canyon.

Mr. POTTER. It contemplates both, Mr. Chairman. I have seen some of Mr. Oppmann's plans, gone over them in detail, and they contemplate the building of a road on the extreme brink of the canyon.

The CHAIRMAN. For what distance?

Mr. POTTER. For a considerable distance; a distance, I would say, of probably 25 miles, following all of the crooks and turns of the rim from the Grand Canyon station to what is commonly known as Grand View Point. By the old wagon road, which goes through the timber on a comparatively straight line, the distance is about 15 miles.

The CHAIRMAN. Then the right of way asked for is practically all on the extreme brink?

Mr. POTTER. Yes; and where it will overlook the canyon all the way around. It also contemplates a tunnel through the first big cliff. The formation of the canyon there is about like this [indicating with a piece of paper]. There is first a high cliff, very nearly perpendicular, and then a bench; and then a second cliff almost perpendicular off in the canyon at the river. They contemplate tunneling down to the level of this bench or mesa and then running a little railway along it to the brink of the canyon of the river, which would be the terminal of that portion of the railroad.

The CHAIRMAN. That is what they call the brink of the Granite Gorge.

Mr. POTTER. That is what they term the brink of the Granite Gorge. It is about 2,000 feet above the river.

The CHAIRMAN. How far below the top of the mesa?

Mr. POTTER. About 3,000 feet. It is approximately 5,000 feet from the top to the river.

Mr. VOLSTEAD. Do they tunnel the lower bench?

Mr. POTTER. They would tunnel through the first big cliff, which is approximately 3,000 feet, and then run out on the mesa to the brink of the second cliff.

Mr. VOLSTEAD. How far on the mesa?

Mr. POTTER. It would be 2 or 3 miles.

Mr. HUGHES. That would be the terminus of the road?

Mr. POTTER. Of that part of the road. They also contemplate a road which will run along the brink of the canyon from the Grand Canyon station to Grand View Point, a distance of about 25 miles. That would follow all the curves of the canyon.

The CHAIRMAN. The gentlemen who are interested in the legislation are here now, and perhaps it would be just as well to hear



from you, Mr. Potter, a little later. The committee would like to hear from Mr. Oppmann, who is thoroughly familiar with the situation, and would like to know just what is proposed by the legislation before us. Whom do you desire to have heard first?

Mr. OPPMANN. Mr. Neal.

#### STATEMENT OF MR. C. J. NEAL, OF CLEVELAND, OHIO.

Mr. NEAL. The legislation which is asked for on behalf of the Grand Canyon Scenic Railroad Company, which is a corporation organized under the laws of Arizona, is for the purpose of constructing a tourist railway from the El Tovar Hotel, on the rim of the Grand Canyon, eastward along the rim of the canyon to Grand View Point.

The CHAIRMAN. How far?

Mr. NEAL. A distance, by air line, of 14 miles, or along the rim approximately 16 to 18 miles. The survey is completed and has been presented to the Land Office, calling for a right of way along the rim at a distance possibly of 100 or 200 feet from the edge of the rim.

The CHAIRMAN. Allow me right there to say that one objection urged is that the construction of your railroad along the proposed right of way would result in the destruction of a fringe of timber along the brink of the canyon.

Mr. NEAL. Yes.

The CHAIRMAN. I don't want to break into your statement further than to ask for an answer to that objection.

Mr. NEAL. For a distance of possibly 100 or 200 feet from the rim of this canyon there is no timber to amount to anything other than that of scrubby and straggling growth; and there are openings possibly at intervals of a half a mile or a mile. The purpose of the road is not to take away that timber, not to destroy the property of the Government, or anything of that kind, but to run the road so as to strike this canyon at intervals so that tourists can have a panoramic view of the canyon. The railroad is perfectly willing to have the line constructed back a safe distance from the edge of the canyon so that there will be no timber destroyed, if it can be done, and the engineers have found that to be absolutely practicable and possible. That has been the objection which has been urged heretofore.

The CHAIRMAN. However, I assume that you are to have a scenic road, the object of which is to give tourists the opportunity to view the canyon from the road, so that that road must be located quite near the brink of the canyon in many places, must it not?

Mr. NEAL. That perhaps was one of the purposes, but not entirely the purpose. The object was to establish stations, just as is done on the gorge line at Niagara Falls, where these tourist trains would stop, and view points would be established. At the present time the tourists go to the El Tovar Hotel and take a bus line through the woods on a diagonal cut some 14 miles, and come out again at Grand View Point. The tourist gets in the bus at El Tovar Hotel, is driven through an immense forest, and comes out at Grand View Point. That is a trip which consumes an entire day.



The CHAIRMAN. How far is that?

Mr. NEAL. Fourteen miles up and 14 miles back, thus making a day's trip out of it under the present system.

The CHAIRMAN. Do they get any view of the Grand Canyon at all until they reach the Grand View Point?

Mr. NEAL. No viewpoint whatever until they are set down at Grand View Point.

The CHAIRMAN. Is the mesa country at the top of the canyon wooded for a considerable distance back?

Mr. NEAL. That line, Mr. Chairman, possibly goes at some points 3 miles from the rim, through a dense forest——

The CHAIRMAN. The forest extends unbroken back from the rim for a number of miles?

Mr. NEAL. Yes. The survey shows it. The tourists get two viewpoints, one at El Tovar Hotel and one at Grand View Point. The road running from the El Tovar Hotel to Grand View Point at the present time is closed practically from November until April.

The CHAIRMAN. Why?

Mr. NEAL. On account of the weather. It is impassable, and they are even at times obliged to let the mail go.

The CHAIRMAN. What kind of weather do they have in that southern climate that interferes with travel during the winter?

Mr. NEAL. Severe snowstorms and wet weather, which make the roads impassable. I have not been there at that time of the year, though Mr. Oppmann has. Last winter I believe the road was closed from November until early this spring, and of course tourists at that time had an opportunity of seeing only that point in front of the El Tovar Hotel.

That is one of the purposes of the road. Another purpose is that the only way to get into this canyon is by means of trails. The trail at the hotel is known as Bright Angel trail.

The CHAIRMAN. That leaves the brink of the canyon at the hotel, does it?

Mr. NEAL. Yes; and winds itself away down through a route probably 2 miles in length to a place known as the Indian Garden, which is a plateau 1,600 feet above the river. From the Indian Garden there is a small plateau probably a distance of a mile, and then there is a sheer drop of 1,600 feet to the Colorado River.

The CHAIRMAN. Is there no trail from that point down to the river?

Mr. NEAL. Oh, yes; that is the most dangerous part of the whole trip—the trail that goes through what is known as the Granite Gorge.

The CHAIRMAN. How long is that trail from Indian Garden down to the river?

Mr. NEAL. Possibly a distance of another mile, and that goes through what is known as the Granite Gorge. And beyond that is the famous Corkscrew, which is a sheer ladder cut in the stone.

The CHAIRMAN. The length of the Bright Angel trail is what?

Mr. NEAL. Approximately 3 miles long.

The CHAIRMAN. Is it a comparatively safe horse trail?

Mr. NEAL. No; absolutely not. It is the reverse. When the President was there on the last trip, they refused to allow him to go down.

The CHAIRMAN. The President is a large man in every way.

Mr. NEAL. A man of 200 pounds or over. It is a trip of such danger that when the people come up from the journey they take to bed and lie in bed for a day or two to rest up—it is an arduous and dangerous trip. At some places you have to get off the mule and walk alone.

The CHAIRMAN. What do they charge for taking tourists from the hotel over the Bright Angel trail and back?

Mr. NEAL. Four dollars.

The CHAIRMAN. That includes the cost of the horse or mule, and all?

Mr. NEAL. The horse, and it includes the guide that goes with the party. They generally go in parties of 15 or 20. The purpose is to build a tunnel—to go back from the brink possibly 1,000 or 2,000 feet and go in with a tunnel, and out near the Indian Garden.

The CHAIRMAN. Your proposed tunnel is near the hotel, is it?

Mr. NEAL. Yes; near the hotel grounds; possibly 1,000 feet back. That is located by the engineers for the purpose of getting the proper slope and not making it too precipitous. That goes down and comes out about the Indian Garden. The object would be in that instance to have cars on a cable line equipped in every way as modern as possible so as to prevent any danger to life. There is also a survey of that.

The CHAIRMAN. What sort of construction do you propose from the Indian Garden down?

Mr. NEAL. From the Indian Garden to the river there is no line proposed. From the Indian Garden to the river bank there would be simply a tramway, perhaps, to take the people over that stretch.

The CHAIRMAN. An aerial tram?

Mr. NEAL. Oh, no; right on the level.

The CHAIRMAN. I didn't know but that you proposed to take the people down in a cage.

Mr. NEAL. No [explains on map].

The CHAIRMAN. This is a sketch of your proposed line from the Indian Garden to the brink of the river?

Mr. NEAL. Yes.

The CHAIRMAN. How long will that line be?

Mr. NEAL. I don't know the exact length, but it will not be very long—probably not over a half a mile or something like that.

The CHAIRMAN. Have you photographs of the various points of interest?

Mr. NEAL. Yes; we have photographs which we would be glad to hand to you [explaining photographs to the members of the committee]. This is the terminal of the Santa Fe Railroad. This is the El Tovar Hotel, and the trail is indicated by this fine line. It leads down to what is known as the Indian Garden, located here [indicating]. From this point to this point, the drop is some 4,500 feet.

The CHAIRMAN. That is, from the hotel to the Indian Garden.

Mr. FERRIS. What is the Indian Garden?

Mr. NEAL. That is the name given to a plateau where there is a little spring; a sort of resting place; a kind of oasis in the desert.

The CHAIRMAN. How wide is that bench?

Mr. NEAL. The plateau extends, then, clear through to the river bank.

The CHAIRMAN. How wide is it?



Mr. NEAL. The plateau drops down like this [indicating], and then the plateau comes this way [indicating].

The CHAIRMAN. But what is the width of the plateau?

Mr. NEAL. Several hundred feet. There are two or three hundred acres in that Indian Garden.

The CHAIRMAN. Does that plateau which marks the top of the granite formation extend up and down the length of the canyon?

Mr. NEAL. Yes; right straight along; all the way along. Now, when we get to the Indian Garden the trail then continues down to the river. But the proposed road which we are contemplating would, from the Indian Garden, go over on the river bank with a loop and come back again, so that the people can look down the 1,600 feet.

The CHAIRMAN. You propose a line from the Indian Garden, on the brink of the Granite Gorge, down to the river?

Mr. NEAL. No.

The CHAIRMAN. What is this line from the Indian Garden that you speak of?

Mr. NEAL. That runs out a distance of about a mile.

The CHAIRMAN. That is simply a line along the plateau or bench?

Mr. NEAL. That is it, with a loop to come back.

The CHAIRMAN. Then you have no line that gives the tourists an opportunity to get down to the river?

Mr. NEAL. Oh, no; we have no line for that.

The CHAIRMAN. I would like to ask Mr. Oppmann what he proposes in the way of a line that will give the tourists an opportunity to get down to the river?

Mr. OPPMANN. From the place where the road turns around and makes a loop we intend to make a way down 1,300 feet with an arrangement so that we can take the tourists down to the river by means of an elevator.

The CHAIRMAN. But you have no definite plan worked out. The bill before the committee contains no provision for a right of way from the bench at the top of the Granite Gorge down to the river?

Mr. OPPMANN. No, it does not. We have not made any provision for that.

Mr. VOLSTEAD. But you say that provision could be made for that by means of an elevator?

Mr. OPPMANN. Yes, that is our intention. We have had some other plans made by our engineer in the way of constructing a small bridge across the Granite Gorge so that the tourists can get across on a mule and look right down on the river, 1,300 feet below.

Mr. VOLSTEAD. A bridge across the river?

Mr. OPPMANN. Yes; from the Granite Gorge across the river to the other side.

The CHAIRMAN. What is the distance across the river from brink to brink at Granite Gorge?

Mr. OPPMANN. In some places I think it is about 400 feet right there, and the narrowest point, where our engineer proposes to build a bridge across, is between three and four hundred feet.

The CHAIRMAN. That would not enable the tourists to reach the river?

Mr. OPPMANN. No. But this is only contemplated, you understand. My attention has been drawn to it because our engineers say that it

would be an easy thing to put an elevator down there—about 1,300 feet down—and that would answer the purpose.

The CHAIRMAN. Is it 1,300 feet perpendicular from the top of the Granite Gorge to the river?

Mr. OPPMANN. From the point out on the rim of the gorge it is 1,300 feet to the river.

Mr. NEAL. This map will give the committee an idea of the railroad along the rim, and of what we propose [explaining map].

Mr. FERRIS. Is that crooked line the proposed route?

Mr. NEAL. The crooked line is the edge of the canyon. At present our line comes along here [indicating] and it runs down and comes out at Grand View Point.

The CHAIRMAN. The heavy black line is the rim of the canyon and the fine black line is the proposed right of way?

Mr. NEAL. Yes.

Now, one word upon the construction of the road. The line, as contemplated, calls for operation with gasoline motors, so there will be no poles or other things to interfere with the scenery, only the bare ties and the two tracks. That is the method of locomotion. The company will also cinder the entire road so that if the tourists do not care to take the road, they can walk. And the company will maintain gladly that cinder path so that there will be a sidewalk right along.

Mr. VOLSTEAD. On the track itself?

Mr. NEAL. Yes. The cars will run at a slow speed and at intervals, so that there would be no danger.

I want to make one point clear before I close about this timber proposition. The alleged destruction of the timber has been a rather serious impediment to this proposition from all of the departments. Where this road comes in contact with the rim, from practical observation of the right of way—and I have been over every foot of it—I do not believe there is one tree worth mentioning that would have to be taken down. Where the road cuts through and comes back from the ridge a few trees would have to come down.

Mr. FERRIS. What kind of timber is that?

Mr. NEAL. It is pine.

Mr. NEAL. No; about a foot through or something like that. So that so far as the destruction of any timber is concerned, it is a very minor matter. This road can be built under the supervision of the Government so that the rights of nobody will be disturbed. The question of its effect upon the scenery is very insignificant. This road would not be noticed at all. This canyon is perhaps 13 miles across and 270 miles long, and at Grand View Point you can see from that point 120 miles. You can stand on the rim of the canyon, and you can hardly discern the river below you. When you are standing at the El Tovar Hotel and watching the trail you can hardly discern anybody on it without a glass. This tunnel would go to the opening below, and the cars on that would be hardly discernible from the rim.

The CHAIRMAN. Approximately three-quarters of a mile away.

Mr. NEAL. I have stood at the El Tovar Hotel and watched and waited for a trail party to come out, knowing where they would come from on the rocks, and I could barely see them as they came along like a fine string of ants.



The CHAIRMAN. Your statement to the committee is that the pine timber along the brink of the gorge is not heavy.

Mr. NEAL. No, sir.

The CHAIRMAN. Is it scattering and open in character?

Mr. NEAL. Yes.

The CHAIRMAN. And of small growth?

Mr. NEAL. Just a scrubby growth.

The CHAIRMAN. How near the actual brink of the canyon does the right of way run?

Mr. NEAL. At some places it comes within possibly 50 feet of the brink of the canyon, and at other places within 100 feet, and at some places 200 feet.

The CHAIRMAN. Along how great a portion of your line would an unobstructed view of the canyon be had by the people in the cars?

Mr. NEAL. If the road was built high enough, along possibly 60 per cent of the trip there would be one immense panorama. Grand View Point is conceded by scientists and all who visit it as the best viewpoint. The El Tovar Hotel and Bright Angel Trail are not so considered, as they lie in a sort of a hollow. Grand View Point gives the unobstructed view. The canyon lays in this direction [indicating].

The CHAIRMAN. North and south?

Mr. NEAL. In a northerly direction here and a western direction here [indicating].

The CHAIRMAN. The general trend of the canyon seems to be northwest and southeast.

Mr. NEAL. That is correct. Grand View Point is called a point because it is a promontory coming out, the canyon branching both ways. You can see 120 miles from that point.

The CHAIRMAN. Is the Bright Angel trail the only trail to the bottom of the canyon in this locality?

Mr. NEAL. Yes. There is one trail at Grand View Point which was built by a mining company. There is Bright Angel trail, and another one running 9 miles the other way; so that in that distance of 23 miles there are three methods of getting into the canyon.

The CHAIRMAN. Is that trail at Grand View Point as good a trail as the Bright Angel trail?

Mr. NEAL. Yes, I think it is a little better; a little safer.

The CHAIRMAN. How about the trail 9 miles up the canyon?

Mr. NEAL. I have never been upon that one.

The CHAIRMAN. Is the Grand View Point trail used somewhat?

Mr. NEAL. Used considerably, because the mining company, the Grand Canyon Copper Company, bring their ore up there.

The CHAIRMAN. Do they charge tourists for traveling over their trail?

Mr. NEAL. That company maintained a small hotel, but it has been practically driven out of business. I make that statement openly, and I say they were practically driven out of business by reason of the Santa Fe Railroad Company seeking to create a monopoly of that business there. They have been compelled to give up the hotel business.

The CHAIRMAN. Who handles the transportation from the El Tovar Hotel to Grand View Point?

Mr. NEAL. The Santa Fe Railroad Company.

The CHAIRMAN. Did they construct the road?

Mr. NEAL. I could not say.

The CHAIRMAN. Do they claim exclusive control over it?

Mr. NEAL. No; you are perfectly welcome to walk or drive over the road, I think.

The CHAIRMAN. Are there any parties at the El Tovar Hotel or in that vicinity who make a business of transporting passengers to Grand View Point other than those under the control of the Santa Fe Railway?

Mr. NEAL. The Santa Fe are the people who control the business absolutely.

The CHAIRMAN. I suppose that if there was a sufficient amount of business that other parties could engage in the business without interference?

Mr. NEAL. Well, Mr. Cameron tried that, but he was driven out and was compelled to give up.

The CHAIRMAN. Compelled to give up the Bright Angel trail?

Mr. FERRIS. I would like to know why that is true.

Mr. NEAL. To be frank with you, the Santa Fe road puts every impediment in the way of every one that goes in there. They have been putting impediments in the way of this proposition for four years.

The CHAIRMAN. Did Mr. Cameron have a hotel at the head of the Bright Angel trail before the Santa Fe built to that point?

Mr. NEAL. Yes, sir.

The CHAIRMAN. Was that hotel closed up?

Mr. NEAL. That hotel is closed.

The CHAIRMAN. Mr. Cameron constructed the Bright Angel trail, did he not?

Mr. NEAL. I could not say as to that. There has been a great deal of litigation between Mr. Cameron and the Santa Fe as to that trail.

The CHAIRMAN. Who receives the \$4 that the tourists pay for going down the Bright Angel trail and coming back?

Mr. NEAL. As I understand it, Mr. Cameron receives \$1 by reason of a lease which he has on the trail between himself and the commissioners of the county. That has been a subject of extensive litigation, and the story of it would be rather long. But the result of the whole proposition is that Mr. Cameron receives a royalty on all people who come down this trail by reason of having a lease with the commissioners of that county, the title of which trail is vested in them.

The CHAIRMAN. And the animals that are used now for the transportation of passengers up and down the trail are furnished and controlled by people connected with the Santa Fe Railroad?

Mr. NEAL. They are owned by the Santa Fe Railroad.

The CHAIRMAN. There is no one else in the locality engaged in the business of transporting passengers up and down the trail?

Mr. NEAL. No one else. I was obliged myself to go down some 10 miles in order to hire a wagon to come up and transport our engineering outfit to Grand View Point. I hired a man who was doing some work on a mining claim.

The CHAIRMAN. You do not mean to say that the Santa Fe Railroad refused to transport you?

Mr. NEAL. No; they did not refuse to do it.



Mr. FERRIS. At the time they sell you a railway ticket, do they sell you tickets inclusive of the hotel and the mountain route trip?

Mr. NEAL. No.

Mr. FERRIS. They do not attempt to bind the passengers up?

Mr. NEAL. They do not attempt to bind them up, but when you get there that is all you find there.

Mr. FERRIS. Supposing that I should want to erect a hotel there and go into business, how would they dispose of me; put down the rate?

Mr. NEAL. I think they would dispose of you pretty quick.

Mr. FERRIS. I have no doubt from what you say that they would, but I wanted to know how.

Mr. NEAL. The water for all hotel purposes has got to be hauled 120 miles, and come up on the Santa Fe Railroad. And all vegetables and all——

Mr. FERRIS. That is what I wanted to know.

Mr. NEAL. By that kind of service, and by putting a spoke in wherever they can, they drove the Canyon Company out of business.

Mr. HERRICK. They would also put up the freight rates on every bit of the material you would use.

The CHAIRMAN. What sort of a hotel does the Santa Fe maintain at El Tovar?

Mr. NEAL. An elegant hotel; a beautiful one.

The CHAIRMAN. Good accommodations?

Mr. NEAL. As good as a king would want.

Mr. HERRICK. The rates are pretty high?

Mr. NEAL. Four dollars a day.

The CHAIRMAN. The same as the rates in the Yellowstone Park. Do they run daily trains over the line? There is one train each way a day, is there not?

Mr. NEAL. Each way; yes, sir. Under the present situation, in order to go up and see the canyon you leave there about 9.30 in the morning, at which time they start a tourist wagon to Grand View Point; and you stay at the hotel that night, and the next day you go to the river over the trail, so that your stay there amounts to two days, with an expenditure of some \$12, at least; besides any little side trips that you might desire to take to different points. If this proposition was put through, you could get there at 9.30 in the morning; from there you could go to Grand View Point and back again before dinner, and in the afternoon you could go to the brink of the river, and up again, and leave that night.

The CHAIRMAN. Is it the idea of you gentlemen that Congress ought to grant what will amount to an exclusive privilege of a right of way from the hotel to Grand View Point, and from the brink to the head of Granite Gorge, without obtaining any control over the operations and the charges?

Mr. NEAL. No, we do not ask anything like that; we do not ask anything exclusive.

The CHAIRMAN. You will notice that there is nothing in this bill, judging from the heading of it, that gives any official of the Government the right to fix rates and charges, or control and regulate.

Mr. NEAL. That can be provided for by your committee. We are perfectly willing to have the bill amended in that respect.

The CHAIRMAN. How much do you think you ought to be allowed to charge passengers if your right of way were granted from the hotel to Grand View Point, and return?

Mr. HERRICK. May I say that we have not fixed that yet, but it would be less than what is now charged by the railroad company up there and back; in other words, they would get it for a far less expenditure than at the present time, although we can not tell exactly what the rate will be. But the intention is to charge less—and we can promise that—than is now charged by the railroad company. And also we are perfectly willing to have an amendment to that effect to this bill—in fact, we suggest it—leaving it to Congress to fix those rates.

Mr. VOLSTEAD. Wouldn't it be better to leave it to somebody else besides Congress?

The CHAIRMAN. You might be placed under the Interstate Commerce Commission. They are now being loaded up with all manner of responsibility.

Mr. HERRICK. We have prepared here some amendments, not exactly regarding that, but regarding some other matters, covering the supervision of construction and maintenance of the road.

The CHAIRMAN. Kindly hand them to the reporter, and they will go into the record here.

(Following are the amendments referred to:)

#### PROPOSED AMENDMENTS TO H. R. 2258.

SEC. 2. That said railway company shall construct a broad-gauge single-track road, designed for the use of oil or gasoline motors only, without the use of poles or other objects which would destroy or interfere with the scenic beauties of the Grand Canyon, and shall construct and operate, in connection therewith, a cinder track for the free use of pedestrians.

SEC. 3. That the Secretary of the Interior is hereby authorized and directed to appoint a competent engineer to supervise the construction of said road, so as to insure its safety for passengers and so as to prevent any unnecessary interference with the scenery of the Grand Canyon.

Change section 2 of the act to "section 4," and change section 3 to "section 5.")

#### STATEMENT OF MR. SAMUEL HERRICK, OF WASHINGTON, D. C.

Mr. HERRICK. Mr. Chairman and gentlemen of the committee, this proposition was first conceived by Mr. Oppmann, the president of the company, in the winter of 1905-6, when he made a trip out to the canyon. He went out there, and, of course, desired to see the scenery in the canyon, going down on mule back. The trip was arduous for one of his size—and you can see by looking at him that he is no light weight—and upon his return up the trail he almost lost his life. He became dizzy, had to get off the mule, and was practically towed up by ropes. Upon another occasion when he was there a young lady fainted on account of the dangers and terrors of the trip. It is a common thing for people to be endangered on this trail, especially those who are old or large in size; in fact, most individuals, excepting the very young and vigorous people, are liable to accidents. I believe some lives have been lost there.

The purpose is to construct a road which will enable everybody to get down, and enable them to properly see the beauties of this great canyon. Less than one-third of the people who go there venture into the canyon, either because they have not the time or because of fear.



Mr. PARSONS. This road does not go in the canyon, but down the rim?

Mr. HERRICK. There are two roads provided for, one along the rim and one down the canyon. The road that goes into the canyon first goes through a tunnel 2,000 feet at an angle of 45 degrees. It is going to be made perfectly safe with a steel cable and under the supervision of the Secretary of the Interior and the Department of Agriculture, so that there will be every possible safety thrown around it. I want to impress upon you that from the brink of the canyon you can not see hide nor hair of this railroad. When you see the first evidence of it it is at a depth of four times the height of the Washington Monument. That is, the part of the scenery that we are supposed to interfere with belongs to the Forest Service. Mr. Oppmann had difficulty in making that trip, and he determined to build a railroad down there, so that the next time he went there he would go in a much safer way. So he came to Washington and investigated the matter, hired an attorney here, saw his Congressman, who is now a Senator from his State, and had them thoroughly investigate the proposition both at the Interior Department and in the Forest Service. The Interior Department stated that if the road were made a common carrier and there should be no objection from the Forest Service, they would grant us an absolute right of way under the act of March 3, 1875. We then went to the Forest Service and we were referred to Mr. McVean, the Chief of the Bureau of Privileges. Mr. McVean stated that he had been out to the canyon, that he realized the necessity for a road being built in there, and that it would be a fine thing. He stated that there would be no objection to it, because, so far as he could see, there would be no interference with the scenery there, no more than running a silken thread across the dome of the National Capitol would interfere with the scenery of the Capitol.

The CHAIRMAN. Who made that statement?

Mr. HERRICK. Mr. McVean himself, chief of the section of privileges of the Forest Service in 1906 and 1907. Accordingly a temporary survey was made of the line of road that year, but it was found that it would be necessary to have a more elaborate one on account of the character of the country and the difficulties to be overcome. So in the spring or summer of 1907 a more thorough survey was executed; a chief engineer with 10 assistant engineers and helpers were sent there, it taking them ninety-one days to make this survey and costing about \$6,000. And I wish to say right here that about \$10,000 was expended on this proposition before this national monument was created. It was necessary to lower a man over the brink of the canyon to a depth of 1,600 feet.

Mr. FERRIS. Has the Secretary of the Interior and the Secretary of Agriculture authority to grant this right of way under existing law now?

Mr. HERRICK. No, sir.

Mr. FERRIS. Where does your objection come from to this right of way?

Mr. HERRICK. It comes from the Forest Service acting through the Secretary of Agriculture. At the time this survey was executed, at the time the proposition was first conceived, there was authority granted under the act of March 3, 1875.

Mr. SMITH. And thereupon they ceased to have authority?



Mr. HERRICK. Thereupon they said they had no authority to give a right of way.

Mr. FERRIS. After you had spent how much?

Mr. HERRICK. About \$6,000. I wish to bring to the attention of the committee that this was done with the full knowledge of the Forestry Service and of the Interior Department. It took ninety-one days during the summer of 1907.

The CHAIRMAN. I recall that several years ago there were bills before the committee proposing a right of way, as I recollect, somewhat similar to that now asked for, and that those bills were approved, as I recollect it, by the Geological Survey people, and I think by the Interior Department. Were the same people interested in those bills some three or four years ago?

Mr. HERRICK. No, sir; there was a bill introduced in 1908 by Delegate Smith, of Arizona, identical with this bill, but that never was acted upon.

The CHAIRMAN. Earlier than that there were bills before the committee asking for rights of way.

Mr. HERRICK. We do not know about those. Our proposition is an entirely independent one.

The CHAIRMAN. Mr. Volstead states that it is his recollection that the proposition before the committee several years ago was to grant the right to build a trail. Is that your recollection?

Mr. FERRIS. By those same people?

Mr. VOLSTEAD. We had hearings here with reference to a trail to go into this valley. I don't remember now whether it was at this point or not, but somebody was claiming a right to a trail.

The CHAIRMAN. Was not that legislation intended to settle the question as to the ownership of the Bright Angel trail, and the control of it?

Mr. VOLSTEAD. That might be.

Mr. HERRICK. There has been a great deal of litigation over that Bright Angel trail. Mr. Cameron went in there. He has had all kinds of locations there, mineral locations, and those were canceled. He has been fighting there for years, and the result of his efforts has been that he was elected to Congress. The people of the Territory have been pleased with the fight that he has put up against that company, and at present he still receives a royalty from the Santa Fe Pacific Railroad upon every person carried down into the canyon. But he has no objection to this bill; in fact, he introduced it.

As I said, this work that we have done was done with the full knowledge of the Interior Department and the Forestry Service, because during 1906 and 1907 we advised them fully in regard to it. I went there myself to find out if it was necessary to secure authority to make the survey in the spring of 1907, and they stated "no;" that under existing laws and regulations anyone could make a survey providing they did not cut down any trees, and so forth. The survey was executed in pursuance of those instructions. And I want to state that the Santa Fe Railroad has been opposed to this from the very start.

The CHAIRMAN. Why do you understand that they oppose this right of way, in view of the fact that it would have a tendency to bring more people to the canyon?



Mr. HERRICK. Well, they expect eventually to put it in themselves, as soon as this is out of the way.

Mr. OPPMANN. At the time that I brought this matter up first with the officers here, I found out in Phoenix, Ariz., that the president of the Santa Fe was against us, so I went to California, to Santa Barbara, to see Mr. Ripley, president of the Santa Fe, and to question him as to why he was against us. I thought he ought to be for us. We wished to spend money in order to give tourists the best chance for sight-seeing. The first day that I was at Santa Barbara he did not say anything. The second day we showed him what we had to show, and on the third day we had an appointment at the Potter House, down on the beach. He came there and said to me, "Mr. Oppmann, you have been very free in talking with me, but I have got to be opposed to this, because it is the same thing that we want to do." I said to him, "If that is the case, Mr. Ripley, I guess we had better break up and move my family back East;" and so I was done with him.

Now, while I am speaking, I want to state here what was said to us by Mr. James R. Garfield, the former Secretary of the Interior, before we expended this \$6,000. I came down to Washington and went to the office of Senator Burton, who was then the Representative of our district in Congress. From there we went over to see Mr. Garfield personally in his office, and Mr. Garfield said: "You go ahead and have a survey made; I can not see any objection to the road. And just as soon as you get a survey made, deposit your plans, your blue prints, with the Commissioner of the General Land Office, and I can not see anything to hinder its going ahead." I did not know then how friendly I was with Mr. Garfield. I used to know his father, James A. Garfield, but I found out that he was not a bit like his father. Mr. Garfield went out there; he met Mr. Ripley in California, went over there with Mr. Ripley in his private car, went along the road with him, and from then on Mr. Garfield was against us; and I might say he was a different sort of a friend of mine.

Mr. VOLSTEAD. As to this corporation, the Grand Canyon Scenic Railroad Company, who are the parties interested in it?

Mr. HERRICK. Mr. Oppmann is president, Mr. Neal is secretary and treasurer. The stockholders are in Ohio, Missouri, and Arizona. It is incorporated under the laws of Arizona.

The CHAIRMAN. How much stock has been issued?

Mr. HERRICK. Very little. We have not sold any, and there is no stock excepting what they hold themselves.

Now, as Mr. Oppmann has told you, Mr. Garfield came to the Grand Canyon with Mr. Ripley in his private car, and he had not been there but a very short time before he telegraphed to Washington to inquire under what authority that survey was being executed, as he thought it interfered with the scenic beauties out there and that it should be stopped. The Forest Service replied that there was no authority necessary, because the attorneys had been told that it was not necessary to grant any specific power. He telegraphed back that there should be very close supervision of this work to see that it did not interfere with the beauties of the canyon, and the Forest Service thereupon directed the supervisor out there, Mr. Breen, to carefully inspect the work, which he did. There has been no objection upon his part to the survey, or, I believe, to the building



of the railroad. But as to that I could not say positively. The fact is that it was done under the supervision and with the full knowledge of the then Secretary of the Interior, the then Forester, and of the Interior Department and the Forestry Service. The survey was completed that fall, but it was necessary to do a good deal of work on the field notes, so as to have the plats necessary for filing, and that was done at the office of the chief engineer, at Kansas City. The plats were sent to Mr. Oppmann in Cleveland, and he immediately came to Washington to file them in the office of the Commissioner of the General Land Office. He went to see Mr. Garfield personally on January 7, 1908, and Mr. Garfield stated that he could not pass upon the matter yet; that they had to be filed in the local land office in Phoenix, and then be held thirty days under the rules, and that then he would pass upon it. Mr. Oppmann took them over himself. That was on the 7th day of January, 1908. In just four days, or on January 11, 1908, before Mr. Oppmann could possibly get to Arizona, and before those maps, by any human contrivance, could get to Phoenix, Ariz., this entire country and domain was reserved in a national monument.

The CHAIRMAN. Have you a copy of the law providing for national monuments? I think it should be inserted in the record at this point.

Mr. HERRICK. I can get it.

(Following is the law referred to:)

[An act for the preservation of American antiquities.]

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That any person who shall appropriate, excavate, injure, or destroy any historic or prehistoric ruin or monument, or any object of antiquity, situated on lands owned or controlled by the Government of the United States, without the permission of the Secretary of the department of the Government having jurisdiction over the lands on which said antiquities are situated, shall, upon conviction, be fined in a sum of not more than five hundred dollars or be imprisoned for a period of not more than ninety days, or shall suffer both fine and imprisonment, in the discretion of the court.

SEC. 2. That the President of the United States is hereby authorized, in his discretion, to declare by public proclamation historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest that are situated upon the lands owned or controlled by the Government of the United States to be national monuments, and may reserve as a part thereof parcels of land, the limits of which in all cases shall be confined to the smallest area compatible with the proper care and management of the objects to be protected: *Provided*, That when such objects are situated upon a tract covered by a bona fide unperfected claim or held in private ownership, the tract, or so much thereof as may be necessary for the proper care and management of the object, may be relinquished to the Government, and the Secretary of the Interior is hereby authorized to accept the relinquishment of such tracts in behalf of the Government of the United States.

SEC. 3. That permits for the examination of ruins, the excavation of archaeological sites, and the gathering of objects of antiquity upon the lands under their respective jurisdictions may be granted by the Secretaries of the Interior, Agriculture, and War to institutions which they may deem properly qualified to conduct such examination, excavation, or gathering, subject to such rules and regulations as they may prescribe: *Provided*, That the examinations, excavations, and gatherings are undertaken for the benefit of reputable museums, universities, colleges, or other recognized scientific or educational institutions, with a view to increasing the knowledge of such objects, and that the gatherings shall be made for permanent preservation in public museums.

SEC. 4. That the Secretaries of the departments aforesaid shall make and publish from time to time uniform rules and regulations for the purpose of carrying out the provisions of this act.

Approved, June 8, 1906.



Mr. HERRICK. But that act specifically states that no such area shall be reserved larger than is necessary for the purpose of preserving these antiquities; in other words, that small areas shall be reserved. It also makes exception of bona fide claims and also unperfected valid claims, showing that it was the intention of Congress that actual settlers on the public domain and other persons there under the authority of law should not be interfered with in their rights. This company had only a survey, which had been executed at great expense.

Mr. PARSONS. May I ask you a question there?

Mr. HERRICK. Yes, sir.

Mr. PARSONS. If this had not been made a national monument park, then the railroad could have gone ahead over the public lands there and would not have been subject to any supervision at all except such supervision as Arizona might impose; is not that so?

Mr. HERRICK. It might be subject to supervision by the Interstate Commerce Commission.

Mr. PARSONS. Is it an interstate road?

Mr. HERRICK. No; but it would be under the supervision of the territorial authorities. The Territory is still under the United States Government.

Mr. PARSONS. But if the Grand Canyon is placed in a national monument, then the Interior Department also can supervise it so as to protect the scenic beauties. It seems to me Secretary Garfield did a very proper thing in getting the Grand Canyon put into a national monument as soon as possible, especially if there was such a project pending. I am not saying anything against the project, but I think if there is to be such a project it, was his duty to the public interests, if the law permitted it, to bring about such a situation there that the Interior Department or some department could supervise the thing, so as to protect the scenic beauties.

The CHAIRMAN. The Interior Department or the Agricultural Department would have had supervision over any lines built within a national park; but since this great area has been included in a national monument, they have no supervision except to prohibit, so far as this sort of an enterprise is concerned. It having been created a national monument, they have no power to grant any right of way or any privileges, except to grant to scientific societies the right to explore and secure antiquities.

Mr. FERRIS. When did they begin to call a national park a national monument?

Mr. HERRICK. In January, 1906.

The CHAIRMAN. I should like to read this law to the gentleman, so he may form an opinion as to what Congress had in mind when it provided for the creation of national monuments. Certainly no one in either House of Congress had any idea of including in a national monument an area larger than some of the States. I do not say that necessarily in criticism, but simply to illuminate the record as to what Congress had in mind and what Congress did in the passage of that act.

Mr. FERRIS. Mr. Chairman, I hope I may be pardoned right here for anticipating a little. I am very busy and I know that all of you are. If they use the usual terms applicable to right-of-way cases, with suitable safeguards thrown around the charter, with reversionary provisions in the event that it is not used, and with the usual limita-



tions imposed of forfeiture in the event of failure to construct, who would have any objection, on this committee or anywhere else, to the construction of such a project?

The CHAIRMAN. Of course, there are a number of questions involved here. There might be gentlemen who believe that the National Government itself should construct and operate the agencies and plants for the benefit of sightseers.

Mr. FERRIS. I did not think the chairman of this committee would go that far.

The CHAIRMAN. The chairman of the committee is not expressing that as his opinion. He simply stated that there might be those, in or out of Congress, who hold that view. Allow me to read the act for the preservation of American antiquities. The Grand Canyon was not in our minds as an American antiquity.

That any person who shall appropriate, excavate, injure, or destroy any historic or prehistoric ruin or monument, or any object of antiquity, situated on lands owned or controlled by the Government of the United States, without the permission of the Secretary of the department of the Government having jurisdiction over the lands on which said antiquities are situated, shall, upon conviction, be fined, etc.

SEC. 2. That the President of the United States is hereby authorized, in his discretion, to declare by public proclamation historic land marks, historic and prehistoric structures, and other objects of historic or scientific interest that are situated upon the lands owned or controlled by the Government of the United States to be national monuments, and may reserve as a part thereof parcels of land, the limits of which in all cases shall be confined to the smallest area compatible with the proper care and management of the objects to be protected.

I remember that in the committee there were various amendments proposed, one of which limited the area to 160 acres; another limited it to, I think, 320 acres; and perhaps there was an amendment proposing to go a little higher than that. Then the committee concluded that perhaps we ought not to place a limitation, supposing in no event, of course, would anything but a small area of land be included in one of these monuments.

Mr. FERRIS. How much did they take in under this bill?

Mr. HERRICK. More than 1,000,000 acres.

The CHAIRMAN. In this case a million acres, or more than a million acres, as Mr. Herrick says, is "a parcel of land." Here is the only authority given to the department in the matter of supervision. This further indicates the intent of the act:

That permits for the examination of ruins, the excavation of archæological sites, and the gathering of objects of antiquity upon the lands under their respective jurisdictions may be granted by the Secretaries of the Interior, Agriculture, and War to institutions which they may deem properly qualified to conduct such examination, excavation, or gathering, subject to such rules and regulations as they may prescribe: *Provided*, That the examinations, excavations, and gatherings are undertaken for the benefit of reputable museums, universities, colleges, or other recognized scientific or educational institutions, with a view to increasing the knowledge of such objects; and that the gatherings shall be made for permanent preservation in public museums.

I do not know but that under the permission to excavate given in this act the Secretary might have allowed these gentlemen to excavate a tunnel; but that was not what Congress had in mind.

Mr. VOLSTEAD. This land ought to be set aside as a national park rather than having what seems to me the ridiculous proposition of withdrawing it under this statute, although I have no personal objection to it. It would be very much more proper to set it aside as a national park. Let me ask you some questions in reference to this bill.



Mr. HERRICK. Yes, sir. Just a moment: Under the first section of that bill, it has occurred to me since your chairman read it, anybody who dug a stick or stone out of any part of that 1,000,000 acres, or built a fire there, or did anything else, would be interfering with a national antiquity, and would be liable to fine and imprisonment.

Mr. VOLSTEAD. I do not imagine there will be much danger of that.

Mr. HERRICK. It is all in the same act.

Mr. VOLSTEAD. Let me suggest this: The bill does not make any provision, as I read it—I have read it very hurriedly—as to the width of the strip that you are going to take. How much land will you need? How wide would the road have to be?

Mr. HERRICK. In the tunnel we would need about 8 feet; maybe a little more.

Mr. OPPMANN. At first it would be just as wide as a street-car track. But our expectation is that just as soon as it becomes known and the tunnel is excavated so that people can go down into it there will be more traffic than ever before. Then it would be necessary to have two tracks, one going and one coming. Do you understand?

The CHAIRMAN. A double-track right of way would be about 50 feet?

Mr. OPPMANN. About 50 feet. I think that would be a fair width.

Mr. VOLSTEAD. You have a provision here for getting timber free. Without any limitation as to the distance you may go into the forest reserve, you wish to take all the timber you want?

Mr. OPPMANN. You might as well cut that provision out, because there is no timber at all on this land.

Mr. VOLSTEAD. But under the bill it could be taken from adjoining land.

The CHAIRMAN. I take it that if the right of way is granted you expect the committee to pass upon those questions in considering the bill and use its judgment as to limitations.

Mr. OPPMANN. And use its best judgment.

Mr. VOLSTEAD. Suppose we should undertake to put in a limitation that you should hold this right of way for fifty years, what objection would you make to that? Have you any idea what it would cost?

Mr. OPPMANN. Yes; I have.

Mr. VOLSTEAD. Can you give the committee some idea as to that?

Mr. OPPMANN. I have not any memorandum here on that point. It would cost, gross, over a million dollars—the whole thing, with the elevator down to the river.

The CHAIRMAN. Have you figured out the cost of the construction on the brink of the canyon?

Mr. OPPMANN. On the brink of the canyon, yes. The cost of construction there is somewhat higher than that of the tunnel system, because it is so much longer; and then we shall have to have some bridges.

The CHAIRMAN. And then there are some cuts?

Mr. OPPMANN. Yes; some cuts going in, you understand. I do not think there are 50 people living in that county that have seen the brink of the canyon between those two points. It would stop almost anybody from getting through. Our engineers had great trouble in getting through on account of the shrubbery.

The CHAIRMAN. Do you mean that there is a low growth there?



Mr. OPPMANN. There is a low growth, about that high [indicating].

The CHAIRMAN. What is that? What kind of timber?

Mr. OPPMANN. It is not timber. What do you call it?

Mr. NEAL. It is juniper and cedar. A good deal of that growth down there.

Mr. OPPMANN. It is something like juniper.

The CHAIRMAN. It is a sort of a cedar, is it not?

Mr. OPPMANN. It is about half as high as this room. You can not find any trees as high as this room. It is no thicker than this [indicating]—merely brush.

Mr. VOLSTEAD. From the railroad would you be able to see into the canyon to any great extent, unless——

Mr. OPPMANN. From our intended road—from this road?

Mr. VOLSTEAD. Wait a minute, until I finish my question.

Mr. OPPMANN. You can see the canyon on the left-hand side going out. When you are going directly east you see the canyon—a sightseeing tour of 17 miles—almost every minute of the time.

Mr. VOLSTEAD. But would you be able to see it without clearing off whatever juniper or other trees are in the way?

Mr. OPPMANN. The juniper that is there is not more than about that high [indicating].

The CHAIRMAN. Please say how many feet you mean. When you say “that high,” it does not mean anything in the record.

Mr. OPPMANN. Say about 4 feet—from 4 to 6 feet.

The CHAIRMAN. In other words, after your road is constructed, following the line you have surveyed, there will be but little timber (and that will consist of only an isolated tree here and there) that will interfere with the view of the canyon?

Mr. OPPMANN. With the view of the canyon—yes, sir.

The CHAIRMAN. I suppose that at points, particularly where you leave the edge of the canyon, there might be a few trees that for the moment would obstruct the view? Is that true?

Mr. OPPMANN. No.

The CHAIRMAN. I suppose the timber growth there is similar to the timber growth generally in that part of the country, and that at some points where there is a turn and a little break, there might be a few trees growing down under the brink of the canyon, the tops of which would come high enough to interfere temporarily with the view for a hundred feet or so, possibly.

Mr. OPPMANN. Yes, sir; that is just about as you will find it there.

Mr. VOLSTEAD. There is no road or trail along where this road is to be constructed?

Mr. OPPMANN. No, sir; and hardly anybody ever passes through. Our chief engineer, when he passed through the first time, tried to go on horseback.

The CHAIRMAN. Is there any sort of a trail following or approximately following the brink of the canyon at that point?

Mr. OPPMANN. No, sir; nothing whatsoever.

Mr. VOLSTEAD. In digging your tunnel, where would you put the refuse? Down below?

Mr. OPPMANN. The refuse would be partly down below, and partly above. You could fix the roads with it, you understand, for some distance. Then there are some fills.



The CHAIRMAN. If you were driving the tunnel at the same time that you were building the road, you could use much of the spoil from the tunnel for the ballasting of the road, I suppose?

Mr. OPPMANN. Yes; and for filling.

Mr. HERRICK. The balance could be dumped into the river; which is very swift at that point.

Mr. OPPMANN. No; there is no river there.

Mr. HERRICK. I mean below.

Mr. VOLSTEAD. If you dumped very much into the river, you would change the appearance of it, would you not?

Mr. OPPMANN. You are about 3 miles away from the river.

Mr. HERRICK. It would carry it down to the Pacific Ocean.

The CHAIRMAN. Can you put into the record before it is printed—are you willing to do so—an approximate estimate of the cost of the construction you contemplate, including the railroad or trolley line on the brink of the canyon, the tunnel, and the line on the lower bench—in other words, approximately all of the proposed construction there except the elevator, which seems to be somewhat nebulous?

Mr. OPPMANN. It will be between \$750,000 and \$1,000,000.

The CHAIRMAN. Are you prepared to and will you put in the record, or you desire to put in the record, a statement in some detail of the cost of construction of these various propositions?

Mr. OPPMANN. Yes, sir; I am prepared to do it, and will do it.

The CHAIRMAN. I suppose you have worked that all out. For instance, you know how much per mile this is going to cost you, approximately? We want a detailed statement, if you are willing to make it, to go in the record when we print it.

Mr. NEAL. We will furnish that.

The CHAIRMAN. In addition to that the committee would like to have a sworn statement of the expenditures made by your company, when they were made, and for what purpose they were made—particularly the expenditures made prior to the erection of this territory into a national monument.

Mr. NEAL. Yes, sir; we will present that.

Mr. OPPMANN. Have you got it here?

Mr. NEAL. No, but we will get it.

The CHAIRMAN. We would like to have that in the form of a sworn statement, in detail, to go into the record.

Mr. NEAL. We will furnish that.

The CHAIRMAN. I have no knowledge as to what the committee may desire to do; there is no one here that I imagine has formed any opinion as to what ought to be done; but if your people are entitled to any consideration in this matter over and above anyone else, it will depend very largely upon what you have done, upon your expenditures at a time when a right of way might have been granted without appealing to Congress.

Mr. NEAL. We shall be very glad to furnish that in the shape of a sworn statement.

Mr. VOLSTEAD. How soon could you commence the construction? It seems to me there ought to be some provision as to the time when you shall commence actual work. You say it is to be completed in five years. I do not think Congress should grant a floating franchise that might simply be sold, without any reference to actual construction.



Mr. OPPMANN. I will say that we will commence just as quickly as our contracts can be made. Our money is together for the whole enterprise.

Mr. VOLSTEAD. Could it be commenced inside of, say, six months from the time the act was approved?

Mr. OPPMANN. Yes, sir; yes, sir; within three months, I should say, or certainly six months. I think six months would be better.

The CHAIRMAN. Would there be any objection on your part to having placed in any bill that might be reported a provision that your right of way should depend upon your satisfying the Secretary of the Interior that you were financially able to go on with this work, and upon your entering into a bond for the speedy construction of the work?

Mr. OPPMANN. No objection at all. We will construct it just as quickly as we can.

Mr. VOLSTEAD. How long will it take to construct this road?

Mr. OPPMANN. I think the tunnel system will take about a year and a half from the time we get the grant.

Mr. VOLSTEAD. The laying of the surface road along the edge of the brink would not need to take that long, would it?

Mr. OPPMANN. It would not take that long; but I will tell you: If you are familiar with the ground and with the conditions, you will understand that this is all a volcanic country. That is especially so along the rim of the canyon, more than it is away from the canyon. Along the rim the building of the railroad is more expensive than at any other place.

The CHAIRMAN. I should say you would be doing very well indeed if you constructed the surface road in a year after you started.

Mr. VOLSTEAD. Would there be any objection to putting in the bill a limitation requiring the completion of the road within two years instead of five years?

Mr. OPPMANN. I am satisfied with two years.

Mr. NEAL. Of course, I would not like to have the limitation so short as that.

Mr. OPPMANN. I should say about three years.

Mr. VOLSTEAD. If, when the time was up, you had gone on and expended money in good faith and had done a substantial part of the work, there would not be any difficulty in getting it extended.

Mr. NEAL. Oh, I do not think so, either.

Mr. OPPMANN. If it took a few months longer the Government would not kick about it?

Mr. VOLSTEAD. No.

Mr. OPPMANN. And we would do it just as fast as possible.

The CHAIRMAN. What do you propose to run over this surface road? Gasoline motors?

Mr. NEAL. Yes, sir.

The CHAIRMAN. How do you propose to operate your line down on the bench?

Mr. OPPMANN. With gasoline; just the same.

The CHAIRMAN. How long is the line on the bench?

Mr. OPPMANN. On the rim?

The CHAIRMAN. No; on the bench—on the top of the Granite gorge?

Mr. OPPMANN. About two miles and a half long, coming down and turning around and coming back to the place where the tunnel commences. I can explain it to you, Mr. Chairman, on the map.

The CHAIRMAN. That is a complete circle, is it?

Mr. NEAL. It is a loop, you know.

The CHAIRMAN. There is a loop at the end?

Mr. NEAL. A loop at the end.

(Mr. Oppmann exhibited a map to the committee.)

The CHAIRMAN. We have that map.

Mr. VOLSTEAD. Might it not be more profitable to operate this road by electricity, instead of by gasoline?

Mr. OPPMANN. We have thought over both propositions. We have been very much hampered about electricity. We could not get the electricity, except from the Santa Fe Railroad, in the valley. Then we would have to have an electric plant. Then we would have to build a plant of our own. We can not have smoke, buildings, and all that kind of thing.

Mr. VOLSTEAD. You would have less smoke on the trains.

Mr. OPPMANN. There will not be any trains.

Mr. VOLSTEAD. The cars, I mean.

Mr. OPPMANN. These will be just the same as the sight-seeing cars or automobiles that you have going around in the city of Washington. In fact, our intention is to have cars for 6, 12, 18, or 24 people, just as you get a crowd. If you get a smaller crowd, you will use small automobiles. It is simply an automobile on rails.

The CHAIRMAN. You would use approximately the system that the Union Pacific and other roads use for local trains—an automobile car, a gasoline car?

Mr. NEAL. Yes. You see, Mr. Pinchot raised an objection right away to poles being put up and wires being strung; and we simply took all those objections and minimized them.

The CHAIRMAN. Is there any opportunity to develop water power in the canyon, and use electricity in that way?

Mr. OPPMANN. Yes, sir; there is a fine opportunity to develop electricity enough in the Grand Canyon to run the whole Territory of Arizona.

The CHAIRMAN. If the gentlemen of the committee do not desire to ask these gentlemen any further questions, I think it might be well for us to hear from the gentlemen from the Agricultural and the Interior departments.

Mr. FERRIS. If I may make a suggestion, Mr. Chairman, you will recall that Mr. Herrick was taken off of his feet almost in the middle of a sentence.

The CHAIRMAN. Oh, Mr. Herrick, did you not complete your statement?

Mr. HERRICK. I should like to take one or two more minutes, Mr. Chairman, if you will let me do so.

The CHAIRMAN. We shall be very glad to have you. I thought perhaps you might like to make a statement after Mr. Potter and Mr. Finney have spoken.

Mr. HERRICK. Yes, sir; I would.

The CHAIRMAN. Unless you care to conclude something that you were saying.

Mr. HERRICK. Why, no; I will just wait until they finish.

Mr. FERRIS. That is all I wanted.



STATEMENT OF MR. ALBERT F. POTTER, ASSOCIATE FORESTER,  
DEPARTMENT OF AGRICULTURE.

The CHAIRMAN. Mr. Potter, we should like to hear from you. I will say to the members of the committee who were not here at first that Mr. Potter spoke rather briefly at the beginning of the hearing.

Mr. TAYLOR. Mr. Chairman, did Mr. Potter make a statement this morning?

Mr. CHAIRMAN. Yes; he made a brief statement. I assume that it will be admitted by all that eventually some provision ought to be made whereby tourists can have an opportunity to travel in a safe and comfortable way along and into the Grand Canyon. There may be a great difference of opinion as to whether the Government should undertake the construction of a road for that purpose, or whether the right to construct should be granted to a company; and if so, under what limitations and conditions. The committee would like to know the views of your bureau, if you have formulated any, as to what ought to be done, and as to how it ought to be done.

Mr. POTTER. I will say in the beginning, that it appears without question to have been the policy of the Government not to allow railroad construction within national parks, and that in effect this national monument is a national park.

Mr. PARSONS. It has always seemed to me that it would be very much better and would add very much to the convenience of tourists if there were a trolley line through the Yellowstone Park, rather than to have to go in those dust-covered coaches. You could see it in half the time, with ten times the convenience, and at probably half the expense.

Mr. FERRIS. The gentleman from New York has certainly voiced my sentiments in that regard.

Mr. TAYLOR. That is the way I feel about it.

The CHAIRMAN. There may be some difference of opinion with regard to the Yellowstone Park; but here is a condition quite different from that existing in the Yellowstone Park. So far no action has been taken, so that Congress has a free field to work in; and the question is: What is the best thing to do from the standpoint of the people?

Mr. POTTER. The point I wanted to make clear, Mr. Mondell, was that if it is true, as has been expressed by some of the members of the committee, that it should be a national park instead of a national monument, then I want to call attention to the fact that this would be the first departure from what has been the policy of the Government in the past.

The CHAIRMAN. Oh, well, the national parks are made for the people, and not the people for the national parks.

Mr. POTTER. That is true; but this would be the first departure in the way of railroad construction. Therefore it should be considered very carefully.

Mr. PARSONS. I think it would be a mighty good thing.

Mr. FERRIS. It is a good thing to begin.

The CHAIRMAN. You have some opinion as to whether or not a wagon road should be constructed, or some road along the lines suggested?



Mr. POTTER. Yes, sir. We had a careful survey made there by one of our forest engineers; and he prepared a very complete plan contemplating the improvement of the national monument by the construction of good wagon roads along the rim, and the improvement of the trails into the canyon. We feel that that is the preferable method of improvement.

The CHAIRMAN. Did you contemplate a wagon road approximately following the rim of the canyon?

Mr. POTTER. Yes, sir; approximately following the rim of the canyon, where the proposed right of way of Mr. Oppmann's railroad is located. A bill has been introduced by Mr. Cameron, the Delegate from Arizona, asking for an appropriation of \$110,000 to construct that road. The bill has not been reported out from the Appropriations Committee, but it was presented in contemplation of carrying out this working plan which was prepared by the Forest Service.

The CHAIRMAN. I imagine that you never got far enough to make an accurate survey of the rim of the canyon with a view of ascertaining or estimating the approximate cost of a first-class wagon road for the distance to be covered.

Mr. POTTER. Yes; we did.

The CHAIRMAN. You did go that far?

Mr. POTTER. Yes, sir.

The CHAIRMAN. You have estimates per mile for the road and the necessary structures—bridges, and so forth?

Mr. POTTER. Yes, sir. The bridge construction does not amount to very much.

The CHAIRMAN. I suppose there might be little draws coming in that would have to be bridged.

Mr. POTTER. Yes.

The CHAIRMAN. Have you that plan with regard to the proposed improvement so worked out that you could put it in the record?

Mr. POTTER. Yes, sir; I shall be very glad to do so.

The CHAIRMAN. We shall be very glad to have it go in the record at this point.

(See Appendix, Exhibit A.)

Mr. POTTER. Of course, another question is this: If we depart from the established policy, which heretofore has been in opposition to railway construction in cases of this kind, it would mean that probably other applications would be made similar to Mr. Oppmann's, and that it would result in the construction not only of this road but possibly of many others. We feel that extensive construction of that kind would interfere with the scenic beauty of the canyon, and would mar it in a way that should be avoided.

The CHAIRMAN. Is it your opinion that a thoroughly constructed and well-ballasted line of this kind, operated with good cars, would seriously interfere with the scenic features of the canyon?

Mr. POTTER. Not if it were constructed back away from the rim, and only went to the points of interest.

The CHAIRMAN. Inasmuch as no one would have any point from which he could see the line of road and the car itself, and the only obstruction would be from the car as it ran affecting the view of some one on the other side of the canyon, in what way would it interfere with the scenic beauty more than a line of coaches running along?



Mr. OPPMANN. It would not seriously interfere in that way.

Mr. VOLSTEAD. I do not see how it could interfere any more than building a road and running coaches over it.

Mr. POTTER. No; it would not, for that matter, especially if it were run back a distance from the rim, rather than right on the rim.

The CHAIRMAN. But, Mr. Potter, would it not be better to have it right on the rim, from the standpoint of the people taking the trip and also from the scenic standpoint, so that they would have the background of the timber on one side of the road and the unobstructed view of the canyon on the other?

Mr. TAYLOR. They could run a trolley line a good deal nearer the edge than they could run a wagon road, anyhow, could they not?

Mr. POTTER. Possibly they could.

Mr. TAYLOR. So that they could see better.

The CHAIRMAN. Aside from the general question of policy—possibly you do not care to answer this question because you may not have thought it out carefully—but aside from the general question of policy, is it your opinion that a good wagon road there would serve the purpose of tourists better and more advantageously than a good, well-constructed trolley line?

Mr. POTTER. I think it would serve their purpose just as well.

The CHAIRMAN. It is 16 miles long. At 4 miles an hour that would consume four hours going, which would be eight hours down and back. That volcanic formation becomes an impalpable powder when it is broken up, and it would require sprinkling the entire distance if you ran wagons over it.

Mr. POTTER. Of course, most people would not care to go the entire length of the road. They would be satisfied with less than that.

The CHAIRMAN. But is not the Grand View Point the real objective point of everybody that goes there?

Mr. POTTER. It is one of them—one of the best viewpoints.

Mr. OPPMANN. Is it not the best?

Mr. POTTER. I could not say, Mr. Oppmann; I have not been on all of them. But I should say without hesitancy that it is one of the best viewpoints of the canyon.

Mr. PARSONS. But if there were a trolley, you could see several of the viewpoints.

Mr. POTTER. Yes.

Mr. PARSONS. Whereas if you had to drive, it would probably take you four hours to get to the principal one.

Mr. POTTER. That is true. You could see more of the points with the trolley.

Mr. FERRIS. If this park is worth anything at all, it is worth something for the people to visit it and see it.

Mr. POTTER. Yes; that is certainly so.

Mr. FERRIS. And that would be true not only of this park but of all others. Why is it not true that both a wagon road and a trolley line would be good for the park and valuable to the park? That is the way it addresses itself to me.

Mr. POTTER. That would probably be the better way from the standpoint of the convenience of the travelers.

Mr. FERRIS. We have car lines on the thoroughfares in our crowded centers, and no one would deny the advantage of having them. It seems to me it is a courageous thing for these fellows to do this—to

go out there and build this line; and I think it is a thing that will make the park attractive and valuable, and be an asset to the Government, rather than a departure from the policy of conservation or any other policy that anybody wants to entertain.

Mr. POTTER. Of course I understand that Mr. Oppmann is entirely willing to have all the amendments made in the bill which are necessary to bring it under the direct supervision of the department.

Mr. OPPMANN. Under the supervision of the Government.

Mr. POTTER. As to the kind of road that shall be built and the regulation of the rates, etc.

The CHAIRMAN. Mr. Potter, you may rest assured that if this committee reports any measure of this kind it will report it in a way that will leave the matter completely and fully under the control of the departments. You can take that for granted in your discussion of the matter.

Mr. POTTER. Of course it is my opinion that a permanent easement for an enterprise of this kind should not be granted, but that only the right of occupancy should be allowed by the Government, as suggested, under a permit subject to revision at the end of a stated period of forty or fifty years, whatever a reasonable period would be.

The CHAIRMAN. Still, that is not so important if at all times all features of the operation and all charges are under the control of the department. Then you have a right of way which, whatever you call it—an easement or a permit—is revocable at any moment, by reason of the fact that you have absolute control over the conditions of operation.

Mr. POTTER. That is the idea. The Government should have the right to control it.

Mr. TAYLOR. I want to ask a question. Mr. Potter, has your department worked out any plan whereby you can encourage and join with enterprises of this kind to put these trolley lines through the parks for the benefit of the public and, on the other hand, prevent them from holding up the public and buncoing or bilking them? It seems to me that can be done by putting some reasonable restrictions upon them, so that we will not have interminable trouble with them and at the same time the people will get the benefit of the enterprise. The idea is not to have the Government making money out of them, but to have the public have the benefit of these parks at a reasonable price, and comfortably; not with a lot of jacks and burros and inconvenience and dirt. I have been all over these places; I have been down that trail myself, and I would not go down again for a thousand dollars. But I know what it is.

The CHAIRMAN. Do you mean to say that you, a Coloradian from the west slope, are complaining about the Bright Angel trail?

Mr. TAYLOR. There is no sense in taking women and others down there on a mule, the way we have to go. I can go down there, of course. I have ridden a broncho since I was a child. But 90 per cent of the people can not go down there at all now; and yet they have a right to see the thing. Why does not your department, Mr. Potter, join in framing up some legislation of that kind for the Yellowstone Park and all the other parks, and make them attractive and economical to the public, as far as can be, instead of putting obstructions in the way? I do not know whether you are doing so



or not; but anybody that wants to continue the existing conditions, it seems to me, is putting obstructions in the way.

The CHAIRMAN. Mr. Potter's department has nothing to do with the Yellowstone Park.

Mr. POTTER. No, sir.

Mr. TAYLOR. I know it; but, generally speaking, they are the guardians of the conservation movement.

Mr. PARSONS. They ought to have to do with the Yellowstone Park.

Mr. POTTER. In granting permits which have already been issued for stables used in connection with the hotel and construction work that has been done in the Coconino National Forest, adjacent to the national monument, and also on part of the lands in the national monument, we have exacted stipulations of that kind, stating that they must not charge more than a reasonable price. The charge down the trail is fixed in that way. We provide that the charge, in addition to the dollar which goes to the county of Coconino, must not be more than \$3. It does not make any difference who goes down the trail with a horse, he must pay his dollar to Coconino County. On the occasion of the first trip I made to the canyon there were other people operating horses there besides the Santa Fe Company. Mr. Hamilton had a string of horses, and was taking people down there—his charges, of course, being the same as those of the Santa Fe Company. I visited the canyon again last fall, coming in from the Utah side; and I was taken down what is known as the Bright Angel Creek trail, on the other side, by horses operated by the Grand Canyon Transportation Company. Mr. Bass also has a station located several miles down the river, from which he operates horses, taking tourists down into the canyon. So the Santa Fe Company has not a monopoly of the visitors there, as far as we can prevent them from having it.

The CHAIRMAN. Except so far as they have the only railroad that approaches the brink of the canyon.

Mr. POTTER. Yes, sir; that is the idea—so far as they have it through the ownership of land which they acquired before the monument was erected.

The CHAIRMAN. Mr. Potter, what do you think about this proposition of constructing a tunnel? Do you think that it is feasible, and that it would perhaps be the best plan for reaching the brink of the Granite Gorge?

Mr. POTTER. As to its feasibility, I would not want to say. That, of course, is a problem for an engineer to pass on. But if it is feasible to construct it, it would be an easy way of reaching the gorge.

The CHAIRMAN. What plan has your department worked out or suggested or had in mind for reaching the Indian Garden?

Mr. POTTER. An improvement of the trail, so that it would be made safer.

The CHAIRMAN. You have no plan for anything other than the improvement of the trail?

Mr. POTTER. No, sir; nothing in the way of railway construction; only in the way of road and trail construction.

Mr. VOLSTEAD. Is there not a claim that that trail belongs to somebody else than the Government?

Mr. POTTER. Yes, sir. It has been stated that it does. There has been a great deal of litigation over it. Mr. Cameron operates it under a license from the county, which was granted to him under the provisions of an act of the territorial legislature.

Mr. VOLSTEAD. Is there not some claim to the Indian Gardens, too—to the land?

Mr. POTTER. Yes, sir. There is also a question in reference to the claim there.

Mr. VOLSTEAD. Do you know whether that has ever been decided?

Mr. POTTER. Mr. Finney could give you a more definite answer to that question.

The CHAIRMAN. Is there some one living permanently at the Indian Gardens?

Mr. POTTER. I think so. There was some one there each of the two times that I visited it.

The CHAIRMAN. Does any one of you gentlemen know whether any person is now claiming the land?

Mr. NEAL. I can give you some information on that point. Mr. Cameron maintains some one in an adobe house at the bottom of the Indian Gardens, in order to come within some of these mining claims. I think it is his brother.

The CHAIRMAN. He has a claim under the mining laws?

Mr. NEAL. He claims some mining rights at the bottom of the Indian Gardens. I do not know the legal status of that matter.

Mr. FINNEY. He has two lode claims at the rim of the canyon, two mill-site claims on the Indian Gardens, and two other lode claims down at the foot of the trail near the river. They were the subject of litigation before the department. Secretary Garfield held the mill-site claims and three of the lode claims to be invalid. The fourth lode claim he held to have a sufficient discovery of mineral upon it to permit the location to stand, and Cameron be allowed to continue to work it.

The CHAIRMAN. Where is that claim located? What ground does it cover?

Mr. FINNEY. That lode claim is down near the river; down near the Corkscrew. A motion for review has been filed, and the case is still pending before our department.

The CHAIRMAN. The Indian Gardens claims?

Mr. FINNEY. All of the claims.

Mr. VOLSTEAD. Would this bill in any way interfere with this claim of Mr. Cameron's, supposing Cameron's claims were validated?

Mr. FINNEY. If Cameron's claims were validated, this company would have to secure a right of way over his claims.

Mr. OPPMANN. And pay him for it?

Mr. FINNEY. And pay him for it.

Mr. OPPMANN. That is what we are willing to do.

Mr. FINNEY. Personally I do not anticipate that there would be very much difficulty in that respect.

Mr. OPPMANN. We are satisfied to pay for any claims we go through.

Mr. VOLSTEAD. Is there a lower shelf in line with the Indian Gardens on which a road could be built down in the valley?

Mr. POTTER. There is a lower bench in the formation all the way through the canyon; yes, sir. But there are many side canyons



breaking into it, so that a road along that bench would have to be a very crooked one. That is, it would have to go around the heads of a great many canyons. But there is a comparatively level plateau at the elevation of the Indian Gardens which extends clear through the Canyon. The entire formation of the canyon is in benches, so to speak; and many of these benches are composed of the different kinds of rock.

Mr. VOLSTEAD. Are there any benches below this one where the Indian Gardens are located?

Mr. POTTER. No; that is just above what they call the Granite Gorge.

The CHAIRMAN. Everything is volcanic below that point, with no well-defined planes. Is that true?

Mr. POTTER. It is a comparatively level break, and there is not much change in the formation.

The CHAIRMAN. As I understand it, the formation from the granite up is all sedimentary?

Mr. POTTER. It is mostly sandstone; yes—different kinds of sandstone and some limestone.

The CHAIRMAN. Sedimentary formations; and this bench is formed by the more rapid erosion of the sedimentary rocks than of the igneous rocks which form the surface of this bench?

Mr. POTTER. Yes; that is the idea. That is probably the explanation of the geological formation—that those lower strata are harder rock than the higher benches.

The CHAIRMAN. Very much harder?

Mr. POTTER. Yes, sir.

Mr. PARSONS. Is this a map of the canyon?

Mr. POTTER. Yes, sir; that is the Geological Survey map of the canyon.

Mr. NEAL. May I ask Mr. Potter one question?

The CHAIRMAN. Yes, sir.

Mr. NEAL. Mr. Potter, you say your plans contemplate the construction of a wagon road from the Bright Angel trail to Grand View Point at an expense of some \$110,000?

Mr. POTTER. Yes. That expenditure also covers a road toward Hermit Basin, going the other way.

Mr. NEAL. That road would be built by the Government?

Mr. POTTER. Yes, sir.

Mr. NEAL. Is it not a fact that the only persons in that locality who could use that road, who could make use of it, would be those connected with the Santa Fe Railroad?

Mr. POTTER. No, sir; anyone could use it who went out there with a rig.

Mr. NEAL. Yes; but the question is whether anybody else is there that has transportation wagons there.

Mr. POTTER. It is up to them if they wish to go. You gentlemen probably understand that prior to the construction of this branch line of the Santa Fe road from Williams to the Grand Canyon all visitors to the canyon went out by stage, either from Flagstaff or Williams. The old wagon road that they now use in going from El Tovar Hotel to the Grand View Hotel is really part of the old road that was used in those times by the stage lines. Of course it is not in good repair. It is, as has been stated, impassable during several

months of the year by reason of its boggy condition, and needs to be improved. There is not any question about that. In fact, there ought to be a new wagon road constructed in a better place, which would be nearer the rim of the canyon.

Mr. TAYLOR. The Santa Fe Railroad would reap the benefit, in any event, from a trolley line or anything else.

Mr. POTTER. Oh, yes; to be sure. You can not avoid that.

The CHAIRMAN. There is this question, however, whether the Government ought to spend its money or allow some private party to make the expenditure.

Mr. TAYLOR. Yes; to be sure.

Mr. OPPMANN. May I ask Mr. Potter a question?

The CHAIRMAN. Yes; we want to thrash this thing out while we are at it.

Mr. OPPMANN. Mr. Potter, you remember, do you not, that about a couple of months ago I saw you over in the Agricultural Department?

Mr. POTTER. Yes, sir.

Mr. OPPMANN. Do you remember telling me that the Government contemplated building a road only about a mile away, say, over to the first point—what they call O'Neill Point? That is what you said.

Mr. POTTER. No, sir. You must have misunderstood me.

Mr. OPPMANN. You contemplate building a road clear to Grand View?

Mr. POTTER. Clear to Grand View; yes, sir.

Mr. OPPMANN. For \$110,000?

Mr. POTTER. Yes, sir.

Mr. OPPMANN. Well, this is 17 miles long.

The CHAIRMAN. Like all estimates, that is subject to revision. We realize that.

Mr. OPPMANN. When it comes to the point, who is going to benefit by it?

Mr. POTTER. The public.

Mr. OPPMANN. Is it not exclusively the Santa Fe?

Mr. POTTER. There is no reason why that should be. It would be open to the public.

Mr. OPPMANN. I am almost certain that if any of us here wanted to go out there with his automobile, he could not go over it; could he?

Mr. POTTER. You could go over it if the Santa Fe people or anyone else was allowed to go over it with an automobile.

Mr. OPPMANN. Is it not a fact that people can not go to the Yellowstone Park and go through it with an automobile?

Mr. POTTER. I can not say; I do not know what the regulations are.

Mr. OPPMANN. Is it not a fact that at the Yellowstone Park the roads and the hotels are controlled solely by the railroad company?

The CHAIRMAN. Oh, no; that is not true as to the roads.

Mr. OPPMANN. It is not?

Mr. POTTER. No, sir; it is not.

The CHAIRMAN. The only reason why automobiles are not allowed to go through the Yellowstone Park is that the Interior Department believes that the running of automobiles through the park on that system of roads would result in accidents.



Mr. PARSONS. There is a good deal of complaint about the Yellowstone Park to the effect that if you want to hire horses from any other place than the Mammoth Hot Springs, you are a long time in getting them, and are generally inconvenienced.

Mr. POTTER. That is because other people do not find it profitable to operate horses at the prices the Government restricts them to; but they are perfectly free to do so if they wish to. If the Government allowed the railroad company to operate automobiles, it would allow any one else to operate them. There is no monopoly of it at all.

Mr. VOLSTEAD. If they operated an automobile over a railway track, I presume there would not be much trouble about that; but I would not be in favor of using the government roads over there for a railway. As long as we built them and have gone to that expense, I think we ought to maintain them. I think we ought to have a trolley line through there. I have been through the Yellowstone Park twice. There is a good deal of that country which is not very interesting, while there is very much of it that is; and if there were a trolley line through the park you could spend very much more time at the points of interest, and it would be more convenient and easy to go through.

The CHAIRMAN. Is there anything further, Mr. Potter?

Mr. POTTER. There is only one other thing, in reference to the statement that Mr. McVean had given his approval to this project. I can not find anything of official record to that effect. Mr. McVean himself is now on furlough; and I take it for granted that any approval which he did give was merely informal, and simply expressing his personal opinion about it.

The CHAIRMAN. That would not influence the committee one way or the other.

Mr. SMITH. Mr. Potter, I have never seen that country and do not know anything about it. With reference to this road along the crest of the canyon, would it be feasible to operate automobiles along there on a good roadbed, rather than stage coaches?

Mr. POTTER. I think it would.

Mr. SMITH. The grades would not prevent anything of that kind?

Mr. POTTER. No, sir. It is a comparatively level country.

Mr. SMITH. Then it becomes chiefly a question, it seems to me, as to whether we will operate an automobile on a dirt road or operate some kind of a motor car on a steel road. Is not that the question?

Mr. POTTER. Practically; yes, sir.

Mr. SMITH. I imagine that in that locality, where feed is scarce and must be very high, the horse will soon be supplanted by the automobile. Then it becomes a question of whether you will operate an automobile on a dirt roadbed or whether you will put down a pair of steel rails to operate it on.

Mr. POTTER. That would be true; yes, sir.

Mr. SMITH. The matter of presenting something to the view would not be a factor in so large a problem as that. So if the Government were going to construct and operate a road, it would weigh the cost and the merits of the steel road, and decide whether it would build that or whether it would build and operate a macadam road to put automobiles on.

Mr. POTTER. But in the construction of either kind of road, Mr. Smith, the timber which is now there should not be removed. The

road should be constructed so that it would not be necessary to remove the timber—that is, to any great extent.

Mr. SMITH. I do not know anything about the fact as to the timber. Then the other question will be whether the Government shall build and operate the road along there, or whether it shall let private enterprise do it.

Mr. POTTER. That is the idea; yes—whether you should encourage private exploitation of the scenery there.

Mr. SMITH. I think everybody will agree that if we allow an individual to build and operate a road he must do it under restrictions. Somebody must regulate his charges and see that his service is fair, and such as the people deserve. I do not understand that the Santa Fe Railroad cuts any particular figure in this question, because it hauls the people in there as a common carrier.

Mr. POTTER. Yes, sir; it does.

Mr. SMITH. And whoever might use the road after they got in there would be patrons of the Santa Fe.

Mr. FERRIS. There was some testimony given at the early part of the hearing to the effect that they do interfere with other people; that they can not do any business there.

Mr. SMITH. The Santa Fe, being a common carrier, could not keep from hauling people there who might want to go in and thereafter ride in my automobile, or yours, if we had an automobile line.

Mr. NEAL. They have the transportation.

Mr. SMITH. They have now, yes; but we are endeavoring to develop a new public transportation service there, either by the Government or by private enterprise.

Mr. POTTER. Are there any other questions, Mr. Chairman?

Mr. FERRIS. Just one general question: Do you not think there is a great deal in the contention that an improvement of this character would really make the park more available, would really be an asset to the park, rather than destroying or departing from the conservation standpoint in any way?

Mr. POTTER. No; I doubt very much if it would.

Mr. FERRIS. You doubt that very much?

Mr. POTTER. Yes, sir; I doubt very much if it would.

The CHAIRMAN. Do you think as many people would go and take the trip to Grand View Point over a wagon road as would go on a trolley line?

Mr. POTTER. No, sir; I do not.

The CHAIRMAN. Are we not after “the greatest good to the greatest number?”

Mr. POTTER. Possibly so. I think, though, that with good roads you would have practically as many people going into the canyon, and that they would see enough of it to satisfy themselves.

The CHAIRMAN. Yes; but we do not want to rob any American citizen of the opportunity to see Grand View Point.

Mr. TAYLOR. Tell us, Mr. Potter, what would be the reason for the Government spending \$100,000 in order to do something that is not as good as a private corporation is willing to do without the Government spending anything, and that will be more convenient to the public if it can be arranged in a way that will safeguard the public interests and not be handing out a plum to the Santa Fe



Railroad or somebody else? If that can be arranged definitely, why is it not a better scheme than spending the Government's money?

Mr. POTTER. If you could exercise the same control and supervision over it, it might be. But if the Government builds the roads it will have absolute control over them, and it will not establish a precedent which will place it under obligations to allow other people to acquire the same kind of rights. The granting of privileges or rights of way to private corporations would not make it possible for the Government to exercise the same control, and it would place you under obligations to approve other similar projects when they are presented.

Mr. TAYLOR. Is not that a system that ought to be worked out by your department for the benefit of the general public in such a way as to protect the Government's rights, too? Why would not that be a good enterprise for your department to engage in, rather than transferring it to this committee?

Mr. POTTER. That is what we have been trying to do.

The CHAIRMAN. Do you think it would be wise for the Government to build and operate this trolley line?

Mr. POTTER. I would not recommend that it should do that; no, sir.

The CHAIRMAN. You think, however, that it would be well for the Government to build and maintain a road?

Mr. POTTER. A wagon road; yes, sir. That would be open to everybody, and could be used with any kind of vehicle—either a saddle horse or a carriage or a cart or anything else.

Mr. VOLSTEAD. Would not a road operated like this be open to everybody, and would not it be open, in all probability, at half the cost, or pretty close to half the cost, that would be involved if the Government should construct it?

Mr. POTTER. If you went in and hired your outfit there, it would; yes, sir.

The CHAIRMAN. You do not think anybody would take an outfit into the Grand Canyon, do you?

Mr. POTTER. They do not do so now, for the reason, I think, that they can hire the outfit at the canyon cheaper than they can get their own outfit in; and that would probably be true if Mr. Oppmann constructed the road.

The CHAIRMAN. The point where an outfit can be obtained is so distant that it makes the cost prohibitive?

Mr. POTTER. To be sure; that is true.

Mr. TAYLOR. And a trolley line, or something of that sort, would be in use at all seasons of the year. The reason I spoke as I did was that I went down there when it was all sleet, and a mule could not stand up. As a matter of fact, he was smooth shod, and it was worth a man's life to go down that kind of a place at that time.

The CHAIRMAN. Mr. Potter, a trolley line along the brink of the canyon would not involve the destruction of any more trees or any more timber than a wagon road, would it?

Mr. POTTER. Why, no, it would not, if the wagon road were built on the same survey.

The CHAIRMAN. Of course the wagon road would have to be farther back from the brink of the canyon in many places, because it would

be dangerous to run as near the brink of the canyon with a wagon road as you can with a trolley.

Mr. POTTER. Yes.

The CHAIRMAN. That being the case, the wagon road being farther back, its construction would result in the destruction of more trees than in the case of the trolley, would it not?

Mr. POTTER. You mean if you cleared away all the trees between it and the brink?

The CHAIRMAN. Yes; or merely through the clearing of the trees from the right of way, because the forest, as I understand it, as in the case of all similar canyons, is much more scrubby and sparse and thin on the brink of the canyon than it is farther back.

Mr. POTTER. Yes; that is true; but of course in building the wagon road they could turn around——

The CHAIRMAN. And miss a tree?

Mr. POTTER. And dodge a tree better than they could with a trolley road.

Mr. TAYLOR. Those trees are not very valuable trees, are they, anyhow, on the brink of the canyon? They are scrub pine, and so on, are they not?

Mr. POTTER. Yes; yellow pine and cedars. We do not want to cut them down any more than is absolutely necessary, because we want to preserve the canyon in its natural condition.

Mr. TAYLOR. But you would not get very many saw logs out of many of those trees, would you?

Mr. POTTER. No. We would not make many timber sales in there.

The CHAIRMAN. Then, as I understand it, the only objection, from the standpoint of your department, to the building of a trolley line along the brink of this canyon would be, first, that you might not have complete control. Of course, it is easy to obviate that by providing for complete control. Second, that Congress might be importuned to grant similar rights elsewhere?

Mr. POTTER. Yes, sir.

Mr. TAYLOR. If the rights were sufficiently guarded, there would not be any special reason why they should not be granted elsewhere, would there?

Mr. POTTER. Well, that is where we object. I do not believe it would be advisable to make extensive improvements of this kind in the Grand Canyon, because if it were done it would interfere with the scenic beauty. In other words, we do not want to make a Coney Island out of it.

Mr. TAYLOR. You would not want a dozen lines down there, of course.

Mr. POTTER. No, sir; of course not. But that is going to the other extreme.

The CHAIRMAN. If you could give everybody that goes to Coney Island an opportunity to view the grandeur of the Grand Canyon, I believe I would be glad to do it. I believe that marvelous view of nature's handiwork would be rather more elevating than the "shoot-the-chute," the "devil's slide," and all that sort of thing.

Mr. HERRICK. May I say a word about the "Coney Island" matter, Mr. Chairman?

The CHAIRMAN. That is not important for the record, I think.



Mr. HERRICK. I simply wish to state that when Mr. Oppmann went to see Mr. Ripley and spent several days with him, trying to get him to withdraw the opposition of the Santa Fe road to this project, Mr. Ripley made the statement that Mr. Oppmann was simply going to establish a Coney Island down there—a beer garden. Apparently that was founded on the fact that Mr. Oppmann is a retired brewer. But ever since then, when this thing comes up, Mr. Garfield brings up the “Coney Island” matter and Mr. Pinchot brings up “Coney Island.” I do not know what connection there is, but there seems to be an unconscious influence of some kind.

Mr. POTTER. It would not be safe, then, for me to claim the remark as original.

Mr. VOLSTEAD. If we can make it as popular as Coney Island, I think it is all right.

The CHAIRMAN. The departments may be more aristocratic in their taste; but those of us who represent the common people are looking out for the interests of the ordinary citizen.

#### STATEMENT OF MR. E. C. FINNEY, ASSISTANT TO THE SECRETARY OF THE INTERIOR.

Mr. FINNEY. Mr. Chairman and gentlemen, the interest of the Interior Department in this matter arises largely from the fact that there is a bill pending (S. 5938) which proposes to transform this monument into a national park. That bill has the indorsement of the President, the Secretary of the Interior, the Secretary of Agriculture, and the governor of Arizona. We hope and believe that this canyon will be created into a park. Therefore we are interested as to whether any rights of way shall be granted.

Mr. TAYLOR. Tell us what the difference is, and what the object of the bill is.

Mr. FINNEY. National parks are authorized by special acts of Congress. They are supposed to be playgrounds of the people, where nature's wonders are preserved in a natural state. The national monument act, as I understand it, was designed to protect American antiquities, such as the cliff dwellings.

Mr. TAYLOR. Both have the same general object, have they not; only one is done by executive order?

Mr. PARSONS. What is the difference in administration?

Mr. FINNEY. The national monument is restricted by law to just so much of an area as is necessary to protect the historic ruin, or whatever there is to be protected.

Mr. TAYLOR. But within what is set apart by proclamation, what is the difference between the administration of the two?

Mr. FINNEY. The national monument, when within a forest reserve is under the jurisdiction of the Department of Agriculture.

The CHAIRMAN. The national monument legislation was intended as has been stated, for the preservation of antiquities; and there are no regulations under which anything can be done in a national monument except to preserve the antiquities.

Mr. FINNEY. Also, under the laws relating to national parks we are able, I think, to provide better accommodations for visitors; we are able to build roads, put up buildings and lease privileges within the parks.

Mr. PARSONS. But does the Department of the Interior have authority to do that with national monuments?

Mr. FINNEY. No; only with national parks and monuments outside forest reserves; the Department of Agriculture has jurisdiction over national monuments wherever they are within a forest reserve; however, I did not come here to argue the park bill.

We have made an adverse report on this bill, under date of February 11, 1910, stating that we do not favor the granting of the right of way, but that if it is granted a very different kind of bill should be enacted into law, because this does not impose any restrictions or conditions upon the grantees. It grants them a right of way along the rim of the canyon and down into the canyon, without any stipulation as to the kind of motive power they shall use. It grants them the right to take timber and rock from the reserve in constructing their roads. There is no provision made for supervision of their construction. There is no provision made for supervising the operation of the roads, and there is no provision made for the regulation of the rates to be charged to the people.

Mr. VOLSTEAD. Is there any objection to their taking stone?

Mr. FINNEY. Yes, sir; that is my recollection.

Mr. VOLSTEAD. I know; but what do you base that on? It is all stone in there, is it not? Whatever stone they might take for that purpose would never show, would it?

The CHAIRMAN. The question was, Have you any objection to their taking stone?

Mr. FINNEY. Yes, sir; we object to their taking it without supervision, because they might deface some parts of the reservation.

Mr. FERRIS. From the looks of these pictures, stone is about all there is out there.

Mr. FINNEY. I would not want them to chip off the rim of the canyon, for instance, and use it for ballast.

The CHAIRMAN. Getting down to the meat of the thing, assuming that Congress concluded that it would be wise to allow private enterprise to provide the facilities proposed under proper control, what is the view of the department with regard to it, or what objection has the department?

Mr. FINNEY. I have here some suggestions along that line; but I should just like to say, Mr. Chairman, before beginning that, that there are people who object to allowing these railroads or electric lines in the national parks. When this matter was up in 1908, the Appalachian Mountain Club filed a protest against the granting of any railroad right of way in the park.

Mr. PARSONS. What park did that refer to?

Mr. FINNEY. This related to the Grand Canyon National Monument.

The CHAIRMAN. Where do they live?

Mr. HERRICK. Have they ever been west of the Alleghenies?

Mr. FINNEY. This letter emanates from Boston.

Mr. PARSONS. They are mighty good people; they are against the Hetch Hetchy project.

Mr. FINNEY. The theory of those people seems to be that it detracts from the natural beauty of the parks; that these things ought to be preserved in a natural state, and that when you get railroad lines in



you are introducing something foreign to the purpose for which the reservations were created.

The CHAIRMAN. They have built trolley lines through the most picturesque part of the Berkshire Hills.

Mr. HERRICK. That is in their opinion a different matter.

Mr. VOLSTEAD. I can not see how a car traveling on steel rails detracts from the beauty of the place any more than a car traveling on a macadam road. It seems to me that that is a matter of sentiment. I do not see any difference between them.

Mr. FINNEY. I do not think railroad tracks, with rails and ties and ballast and the usual accompaniments of a railway, are quite as picturesque as a road; and if Congress should see fit to grant this right of way, we think the road should be kept back from the rim of the canyon.

The CHAIRMAN. Why?

Mr. FINNEY. So that the rim of the canyon shall be free of access to everyone; so that if the Government should desire to build a wagon road there, it may build it right along the rim of the canyon.

The CHAIRMAN. But allow me to make this suggestion: You can build a trolley line on the very rim of the canyon at points where the rim contours; while a wagon road, to be safe, must necessarily be kept back from precipitous points.

Mr. FINNEY. Yes.

The CHAIRMAN. Why should you diminish the value of a trolley line by throwing it back into the woods? In other words, even though you are going to build both a wagon road and a trolley line, would not the better plan be to have the trolley line on the rim of the canyon and the road back of the trolley line?

Mr. FINNEY. I think not; because a trolley road built on the rim of the canyon, overhanging the canyon, would certainly detract from the scenic beauty of the rim.

The CHAIRMAN. Oh, well, I do not assume that they are going to hang it on a cobweb over the canyon, or anything of that kind. I can not understand how anyone is going to be so situated (unless it be a man in an aeroplane or a balloon) that a road along the rim of the canyon could interfere with his view. If he were in the woods back of the road, the road would not interfere with his view, certainly; and the only place where it could affect his view would be if he hung out over the center of the canyon in a balloon.

Mr. FINNEY. If he went out to the edge of the canyon to look down, he would have to be watching for cars all the time.

Mr. HERRICK. But they do not run every minute.

Mr. VOLSTEAD. The chances are that it would be a good many feet from the real edge of it in most places.

Mr. FINNEY. It seems to me that the object which these gentlemen say they are trying to reach would be just as easily accomplished by having the road back a few hundred feet from the rim. They would still be able to transport people to the Grand View point.

The CHAIRMAN. Yes; but it is not a question with the committee of what these gentlemen want. The question is, What should we do to serve the people in this matter? If the people are going to have a road to travel over along the rim, should not that road be so located that they can see the canyon?

Mr. SMITH. Otherwise, they must disembark from the car at certain points, and view the canyon, and then go back and get aboard again.

Mr. TAYLOR. I should think they would want to run a scenic car along there so that they would be right out on the edge all the way. It seems to me that that would be the most attractive way to do. I do not see how they would hurt anything by going along there.

Mr. BYRD. I should like to ask the gentleman a few questions. The primary object of all these monuments and scenic reserves is for the benefit of the sightseers of the United States; is it not?

Mr. FINNEY. Yes, sir; that is the theory.

Mr. BYRD. If the building of this road will make it cheaper for them to view it, and make more accessible to them all the points of interest, do you not think it is the duty of Congress to provide for its construction?

Mr. FINNEY. Yes, sir; provided it does not interfere with the beauty of the park.

Mr. BYRD. Let me ask you another question: If a trolley road is built, as contemplated by this scheme, how much cheaper would it be to view all the points of interest in the canyon by going on the trolley road than by hiring a cab or an automobile and taking the drive?

Mr. FINNEY. That would depend on what provision you make for the control of the rates which these gentlemen shall charge. If you do not make a provision of that kind, the expense will be the same as it is now.

Mr. PARSONS. But, Mr. Finney, if they do not have more than go there now, can they make the railroad pay? I mean, they will have to reduce their rates so as to attract more people there, will they not?

Mr. FINNEY. That is extremely probable, but I should think that with an investment of a million dollars they would have to have more traffic than there is now at the Grand Canyon.

Mr. HERRICK. Fifteen thousand people a year go there now.

Mr. PARSONS. Moreover, if you have a trolley line, people can see the wonders of the region in a great deal less time. If you had a trolley line through the Yellowstone National Park you could go through it in half the time that you do now, and you could see just as much, and you would not have to pay but half the hotel bills that you pay now.

Mr. VOLSTEAD. You could see more, because you would have more time at the points of interest.

Mr. PARSONS. Yes; and you could see it under comfortable conditions, and not with a layer of dust all over you.

Mr. TAYLOR. A lot of people would go there then that will not go with the conditions that exist now.

Mr. FINNEY. I think it is very desirable that all of the parks should be made as accessible as possible, if it can be done without spoiling them.

Mr. TAYLOR. Is not the main question how to devise some scheme of control here to prevent monopoly? All the rest is detail.

Mr. FINNEY. That is the most important thing.

Mr. TAYLOR. That is what I have in view—the protection of the rights of the public in the matter. I do not care who these people



are, if they will go and spend the money and do this, and we can control them, it seems to me it is a deserving enterprise.

Mr. FERRIS. In the adverse report you have made, which you spoke of a moment ago, do you suggest the proper safeguards that we should have in the event that we see fit to pass this legislation?

Mr. FINNEY. I have them here. They are not in the report.

Mr. FERRIS. They are not in that, you say?

Mr. FINNEY. I was going to mention them, if I might.

Mr. TAYLOR. We shall be glad to have you do so.

Mr. FINNEY. Of course this is conditional on the creation of the park, because a park would be under the jurisdiction of the Secretary of the Interior. If it remains a monument, it would be under the jurisdiction of the Secretary of Agriculture.

Our first suggestion is that the maps and field notes and other data in connection with the proposed road shall be filed with the Secretary of the Interior for his examination and approval.

The CHAIRMAN. Is the paper that you have there a long one?

Mr. FINNEY. Not very long.

The CHAIRMAN. It is all as to matters of detail, I presume.

Mr. FINNEY. Second, the bill should also specify the motive-power which is to be used, and steam should not be permitted.

Third, that the right of way be used for a scenic railway only, and not for transportation of freight, or as a trunk line.

Mr. PARSONS. There would not be any objection to allowing them to use it as a railway to transport freight from the end of the Santa Fe road up to this other hotel, would there?

Mr. TAYLOR. They would have to take provisions up there, would they not?

The CHAIRMAN. What objection would there be to their running trains there at night to take up supplies?

Mr. FINNEY. It might not be objectionable to run them at night.

The CHAIRMAN. Would there be any objection to their running them at any time when they would not interfere with the passenger business? As a matter of fact, if they could do it without interfering with their other business, what objection would there be anyway, so long as you have it absolutely under your control?

Mr. FINNEY. There is quite a difference between a scenic railway, like the one along the Potomac River to Great Falls, for instance, and a road where you are constantly passing freight cars and through traffic.

Mr. SMITH. There would not be any freight moving there, would there?

Mr. PARSONS. The road that goes up to Great Falls probably takes all the provisions that are used by the people who run those lunch places up there.

The CHAIRMAN. Undoubtedly.

Mr. FINNEY. They might run them at night, of course.

Mr. POTTER. Then there is the matter of the copper mines at Grand View Point. Of course if there were railway transportation there probably would be some development of the copper mines.

Mr. VOLSTEAD. Would not that be a good thing?

Mr. FINNEY. It would be a good thing; but it would be inadvisable to have those trains passing and repassing while the tourists

were trying to look over into the canyon. The freight cars might shut off their view at times.

Fourth, that the right of way be limited to not exceeding 25 feet on each side of the center of the track, or a total width of 50 feet.

Fifth, that within the boundaries of the right of way only such trees be felled or cut away as may be actually necessary for the building of the road and the safe passage of the cars.

The CHAIRMAN. Those are all matters of detail that you could work out under your regulations.

Mr. FINNEY. Sixth, that the company be prohibited from taking from the reserve any earth, stone, or timber during the construction of the road, or during its operation, except whatever it is necessary to remove in making cuts or fills.

The CHAIRMAN. All of those are matters of detail that you can work out.

Mr. PARSONS. All of that would be under the supervision of the department, I suppose.

Mr. FINNEY. Yes, sir.

Seventh, that the station grounds be restricted to a size that is large enough for station uses, the acreage being left to the discretion of the Secretary of the Interior.

Lastly, that a clause be inserted in the bill requiring construction to begin within a specified period, to be completed within another specified period, and a provision that, in the event of failure to construct, any uncompleted portion shall stand forfeited without any action on the part of the Government. That is so that we shall not need to go into the courts to forfeit it.

Mr. FERRIS. That ought to be done.

Mr. PARSONS. There is a question on that point that occurred to me in reading the bill. If the line is not completed along the rim, should it not all be forfeited? Otherwise the next fellow who comes along, and who wants to build the rest of the way, will not have a scenic railway for the first part.

Mr. FERRIS. If you will recall, we had that matter out with the gentleman from Illinois [Mr. Mann] on the Robertson pipe-line bill. Do you recall that? The reason he objected to the passage of that bill was that we provided for a forfeiture of the entire line in the event that any one portion of it was not completed. He thought that was a harsh, rigid, unnecessary rule, and suggested that before he would give his consent to having it passed it must forfeit only the section which was not completed.

Mr. PARSONS. The conditions are different here.

Mr. TAYLOR. They might build over the most scenic section of it only and block it. In that way they could keep anyone else from coming there by building only half a mile of road.

Mr. FERRIS. You may be right about that. I simply recalled the incident, because I had some talk with him about it.

The CHAIRMAN. I think it would be entirely proper to make the company enter into a bond to complete their line of road clear through to a certain point within a specified time or lose everything they put in.

Mr. TAYLOR. Have you any suggestions as to how the company ought to be organized—whether under federal law or state law, or



the form of their charter, or anything of that kind—or as to the regulation or control of them?

Mr. FINNEY. They are already organized, as I understand, under the laws of Arizona.

Mr. TAYLOR. I know; but we do not care whether they are or not. The question is what the Government wants and what the people ought to have. If they get a franchise here, they will get it the way we give it to them, probably, and with the conditions that we impose.

The CHAIRMAN. If they are under the control of the Government, it is immaterial where they are organized.

Mr. HERRICK. We can organize out in Colorado, if you wish.

Mr. TAYLOR. No; I do not mean that. The question I was asking was, What does the Interior Department think about it, as to what ought to be done as to the details of the management or control?

Mr. PARSONS. There is nothing there about regulation of charges.

Mr. FINNEY. No. There should also be a clause providing for the regulation of rates which are to be charged passengers. From the department's standpoint, of course, we think those things ought to be left largely to the discretion of the department, if Congress is willing to do it. In other words, we should be in a position to protect the public, and at the same time to afford these gentlemen a reasonable return on their investment.

Mr. TAYLOR. Of course.

Mr. VOLSTEAD. Have you ever given any consideration to the question of whether they should be reincorporated under national law, so that Congress would have the power to regulate them?

Mr. FINNEY. No, sir; I have not given that matter any consideration.

Mr. VOLSTEAD. The trouble is, we have not any national laws on the subject that are any good.

The CHAIRMAN. Is there any difficulty in our regulating the corporation to whom the grant is made?

Mr. VOLSTEAD. Yes; there is quite a little.

Mr. SMITH. There is not, provided you do not conflict with the jurisdiction of a State to regulate a public-service corporation.

Mr. FINNEY. But this is a Territory.

Mr. SMITH. If it always remained a Territory, it would be simple enough; but when Arizona becomes a State (as it will some day) there will be a question as to whether or not the State of Arizona will want to control this matter itself.

Mr. FERRIS. It probably will become a State some day.

The CHAIRMAN. Mr. Herrick, if you would like to close, briefly, you may do so.

#### CONCLUDING STATEMENT OF MR. HERRICK.

Mr. HERRICK. Mr. Chairman, I wish to take just about five minutes, if I may.

So far as these propositions made by the Interior Department are concerned, we agree to every single one of them, and we are willing to have the bill amended to so provide, with the exception of the forfeiture clause. We think the two roads should be distinguished, so that if one road fails of completion all of that road only shall be forfeited.

Mr. VOLSTEAD. Let me suggest a compromise——

The CHAIRMAN. In other words, you want to have the road on the brink of the canyon and the road down in the canyon considered as two separate propositions?

Mr. HERRICK. Two separate things. It would not be right, if we should build one, to have that entirely forfeited because we failed to build the other, or did not complete the other.

Mr. VOLSTEAD. Excuse me; let me suggest a compromise. I think we ought to have the power to forfeit; but would not this be a better solution of it: To allow Congress to forfeit it, instead of having it forfeited automatically? Then we could consider whether under the circumstances they were entitled to equitable consideration.

Mr. HERRICK. I think that would be much better.

Mr. VOLSTEAD. I think we ought to have the power to forfeit absolutely the whole thing.

Mr. PARSONS. Mr. Finney, you were going to make some suggestion. May we not have the benefit of that?

Mr. FINNEY. As far as the Interior Department is concerned, I think we would have no objection to separating the two lines of road. They are really separate roads, independent of each other.

Mr. TAYLOR. That looks fair, it seems to me.

Mr. VOLSTEAD. Suppose they only succeeded in building half of the road along the rim of the canyon?

Mr. TAYLOR. I think they ought to build it within the time prescribed.

Mr. VOLSTEAD. Suppose, for some reason or other, they should fail—would it not be right to leave in Congress the power to determine whether the whole should be forfeited or not?

Mr. FINNEY. Let them apply to Congress for an extension of time, then.

The CHAIRMAN. I think that so far as either one of the lines is concerned, they either ought to build it or not build it—one or the other.

Mr. VOLSTEAD. That is the way it looks to me; but it seems to me that Congress ought to retain the power to determine whether they should forfeit all of it or not.

Mr. FINNEY. You will remember that in the case of some of the Alaskan roads Congress has given further time.

Mr. FERRIS. Let us work these details out afterwards, and let Mr. Herrick conclude, and let this hearing be closed.

Mr. HERRICK. I wish to say, for the benefit of gentlemen who were not here at the beginning of the hearing, that this road was planned and surveyed long before the creation of this national monument. It was surveyed with the full knowledge of the Interior Department and of the Forestry Service, and with the knowledge that we were going to apply for a right of way as soon as the survey was completed. It was partially surveyed in the presence of the Hon. James Rudolph Garfield, then Secretary of the Interior; and the maps were brought to Washington and presented to him before this national monument of 1,000,000 acres was created. Mr. Oppmann was then told to go to Arizona and file them; and before he could possibly get to Arizona, viz, four days later, after his interview with Mr. Garfield, this national monument was created.



The CHAIRMAN. We are very glad to know that there was some reason for the creation of the national monument.

Mr. HERRICK. I wish to say that a great many bodies have indorsed this project, among other the territorial legislature of Arizona. We have here a certified copy of their resolutions in favor of this bill.

The CHAIRMAN. Place it in the record.

(The paper above referred to is as follows:)

TERRITORY OF ARIZONA,  
OFFICE OF THE SECRETARY.

UNITED STATES OF AMERICA,  
*Territory of Arizona, ss.*

I, John H. Page, secretary of Arizona, do hereby certify that the within is a true and complete transcript of Council Memorial No. 4, which was filed in this office on the 10th day of February, 1909, at 11.30 a. m.

In witness whereof I have hereunto set my hand and affixed my official seal. Done at Phoenix, the capital, this 15th day of February, A. D. 1909.

[SEAL.]

JOHN H. PAGE, *Secretary of Arizona.*

#### MEMORIAL.

*To the Senate and House of Representatives of the United States of America in Congress assembled:*

Your memorialists, the twenty-fifth legislative assembly of the Territory of Arizona, believing that it will be greatly to the benefit of the Territory of Arizona, and to the future State of Arizona, most earnestly request that you pass House Resolution 22093, introduced in the House by Mr. Smith, of Arizona, being a bill "Granting right of way over certain sections of the Grand Canyon Monument Reserve, in Arizona, to the Grand Canyon Scenic Railroad Company."

And your memorialists will ever pray.

GEO. W. P. HUNT, *President.*

SAM F. WEBB, *Speaker.*

Mr. HERRICK. Furthermore, the Restaurant and Hotel Men's Association of Los Angeles, and other bodies like that, have indorsed it; although we have not as yet, I am very sorry to say, gotten the indorsement of the National Conservation Society. So far as the Forest Service is concerned, I do not believe they have submitted any real arguments here against this proposition, except the argument that it might interfere with the scenic beauty of the canyon, and that it is contrary to the policy of the Forest Service. Just what that policy is, I do not undertake to define.

Mr. PARSONS. "The policy of the Government heretofore," I think was what Mr. Potter said.

Mr. HERRICK. I wish to say that there had only been eight national monuments created up to the time when the last bulletin (I do not know whether it was No. 3 or No. 333) was issued by the Forest Service; and of those eight, this one had over a million acres. The other seven, all combined, did not have one-thirtieth of that area. In other words, all the other national monuments throughout the country did not have 3 per cent of the area of this Grand Canyon National Monument. Therefore what has been done in the case of the other national monuments should not be a criterion here.

The CHAIRMAN. Mr. Potter's statement was as to the policy of the Government in national parks.

Mr. POTTER. And, as Mr. Finney stated, the Secretary of Agriculture has reported favorably upon the bill creating this as a national park instead of a national monument.

Mr. PARSONS. Was the Grand Canyon brought into a forest reserve before the national monument was created?

Mr. POTTER. Yes, sir.

The CHAIRMAN. I have always wondered why it was made a national monument; and I really have heard no reason advanced until to-day.

Mr. HERRICK. I think that is the very reason; because there was absolutely no talk about it on January 7, when we went to see the Secretary and the Forest Service. They did not mention national monuments. About five days later, however, they knew that our maps would be filed in the Phoenix, Ariz., land office.

The Grand Canyon can not be compared with any other scenery in the country. It is absolutely unique. It is simply a hole in the earth, 6,000 feet deep and 13 miles across. What is done with regard to other national curiosities or monuments or antiquities should not be done here, because this is separate and distinct from all the others. The Yellowstone Park is not like it. The Black Hills Cave Park is not like it; neither is the park in Wyoming—the “Devil’s Tower,” I believe it is called. It is different, and a different lot of considerations must apply to it.

So far as the scenery is concerned, I want to ask this committee what interference there would be with the scenery around the Washington Monument grounds, we will say, if a little tramroad were constructed down there, or a little automobile line was run, and the monument were just four times as high as it is? You would wonder how people up at the top of the Washington Monument could be interfered with by this little road down at the bottom, which they could scarcely see with a telescope. And yet, Mr. Chairman, it is just 2,000 feet from the brink of the canyon before this road comes out into the open. Meantime it is in a tunnel, and you can not see it. It is impossible, without a telescope, to see anyone at the foot of the canyon from the brink.

The CHAIRMAN. You can see a long distance in that country.

Mr. HERRICK. Yes, you can; but I do not believe your sense of vision would be impaired or insulted by seeing a little car running along 2 or 3 miles below you.

There is hardly a nation in the world that has great national monuments or antiquities like this that does not let the people see them. You can go into the Alps, you can go into others of the mountains of Europe—the Matterhorn and the Stanserhorn and the Riga and the other great mountains; Mr. Oppman has been up all of them and gotten ideas from them—and you will find roads up there, and you will find a way for the people to see them. Those are monarchies over there, but they seem to be pretty careful about letting their subjects get a view of these great things. Mr. Pinchot, on the other hand (whose statement is not in the records, but he has made it to us), says there is no way of fully realizing the beauties of the Grand Canyon except by going to the brink of the canyon, sitting on a stone for three days and looking at it. The average American citizen does not have three days to waste, and yet he has got to give that amount of time to-day if he wants to take in all of the sights. It takes a day to go down into the canyon, and then the average man will rest up a day from the ardors of the trip before he goes along the trail. Then it takes another day to go to Grand View and see the scenery from there. He travels all day long through



the forests, over the worst possible kind of a road, full of gulches and hills and crevasses and all sorts of obstructions. He does not see the canyon all day long until he gets over to Grand View Point. Then he sees it, and then he comes back again.

The present plan is to let people see the canyon from the start to the finish; and if a few trees stand in the way, cut them down. I do not believe the American people have come to the point yet where they will allow a few trees to interfere with the greatest wonder in the world. Nobody can adequately view that scenery without going down into the canyon and without going along the rim. Even at the present time a man can not go along the rim; it is necessary to cut down the scrub. It was necessary for our surveyors to cut down the scrub, because it was impenetrable up to the rim in a good many places. There is no path along there.

The CHAIRMAN. Is there a trail along the brink for any considerable distance from the hotel either way?

Mr. NEAL. Probably half a mile out.

Mr. OPPMANN. Then it loses itself.

Mr. NEAL. There has never been a path of any kind.

Mr. BYRD. You do not think that building that little road on the brink would obscure the magnificent beauties of the canyon?

Mr. HERRICK. No, sir; I do not think it would interfere with it in any way.

Mr. TAYLOR. It would not be as large in proportion as a spider web.

Mr. HERRICK. But there can be a provision put in the bill to the effect that it shall be built under the supervision of the Secretary of Agriculture, who shall see that as few juniper trees as possible are cut down, and other provisions like that which will preserve the scenery for "our children's children forever."

I have a letter here, Mr. Chairman, from the Hon. Mark A. Smith, who was Delegate here from Arizona, who was a member of this committee, and who puts the thing in a true light, because he has been acquainted with it all his life. He wrote a letter to the Secretary of Agriculture, and I can not do any better than read it, if I have your permission. It is not long. It is dated February 25, 1910, and is as follows [reads]:

WASHINGTON, *February 25, 1910.*

The SECRETARY OF AGRICULTURE,  
Washington.

MR. SECRETARY: The Grand Canyon of the Colorado in Arizona offers to man the most stupendous wonder on the whole surface of the earth for his contemplation and enjoyment.

Short-sighted policies of recent years have done, and are now doing, everything possible to hide this mighty work of nature from any real sight, except at great hardship to the visitor and great profit to the Santa Fe Railroad. Why any man knowing the canyon as I know it could object to a railroad along its rim and an incline-hidden road into its depths is a marvel. God put it there for people to see. Yet certain departments seem determined that it shall not be seen except by those able to pay the impositions now practiced on the visitor. Ours is the only civilized country in the world that would do this sort of thing. Bear with me while I give a bit of history, careless only about exact dates, as I am writing wholly from memory. These are the facts as I obtained them from reliable men and from undisputed records and from personal knowledge.

When the Grand Canyon was a forest reserve Mr. Oppmann and his associates concluded to build the scenic roads at the canyon, as already shown you. He had consent of the Secretary of the Interior and proceeded to survey the route and did so at an expense of some \$10,000. His claim was thus initiated, and his expense gave him a right as against the world, except Congress should interfere. He brought his maps,



etc., to the land office here for filing, expecting to receive the regulations from the department under which he could proceed with his enterprise. He was directed to file them in the local land office in Arizona, and before he could possibly do so the President of the United States, advised thereto by Mr. Pinchot (and utterly without warrant of law), proclaimed the Grand Canyon of the Colorado a national monument. What authority your department has over national monuments I do not know, but I do know that the Grand Canyon National Monument does not legally exist. The proclamation of the President creating this was based on the act found in volume 34, part 1, United States Statutes, page 225. Under the power conferred in that act he could just as reasonably have made the Rocky Mountains a like reserve, or all unoccupied government lands in Arizona a national monument. The act is entitled, "An act for the preservation of American antiquities." It is sure antiquated enough and so is Pikes Peak. It has no more historic or scientific interest as an American antiquity than has Niagara Falls, or the big trees in California.

I have submitted this act to a half dozen of the best lawyers in Congress, House and Senate, and without dissent they deny the power attempted to be exercised by Mr. Pinchot through the President's proclamation.

The argument made here will be invoked by the railroad, and successfully invoked, when the present company is frozen out. The railroad company has a monopoly of the canyon, and it naturally desires to keep it, and if this just and righteous enterprise is prevented from acting now, the railroad company will be more successful when you shall have passed from the scene of your honorable and useful service.

I speak the universal sentiment of Arizona in asking that this scenic road shall be allowed to proceed at once.

The legislature has spoken by solemn memorial, which has been shown to you. All this talk about destroying the beauties of this mighty gorge is all stuff and nonsense to anyone who has gazed into its awful and mysterious depths. It is so limitless and mighty that man's puny hand can not mar it, any more than it can dim a star in the heavens. By comparison a silk thread stretched from the Dome of the Capitol to Mount Vernon would ruin the beauties of the Potomac and commercialize the atmosphere about the grave of Washington.

MR. TAYLOR. That is pretty nearly true. If you will go there and look at it, you will see that that is pretty nearly right.

MR. HERRICK. I have all the regard in the world for Mr. Potter. I know he is speaking from his absolute convictions, but the statement has been made here that the Forest Service objects to anybody commercializing that beauty out there. In other words, they do not want to see anybody make any money there, because it is so beautiful; and therefore these people shall not do it. But I am departing from this letter [reading]:

Mr. Secretary, the world is entitled to see this wonder, and see it as cheaply as possible. The road as designed can not in any way injure the canyon, but would reveal its magnificent wonders to thousands who can now only take a squint at it. Not one in ten who visit this scene can descend the depths. It is a dangerous trip. With this incline road all could see it, young and old alike, and see it at less than half the exactions now imposed. The road should be built, notwithstanding the opposition to it by those enjoying profits by reason of its absence.

In conclusion, Mr. Secretary, this letter is prompted by my desire to serve the interest of Arizona, to open up this mighty wonder to the eyes of the world, and to save this enterprise from the monopoly which awaits it when the present promoters are driven from the field.

With sentiments of high regard, I am, Mr. Secretary,

Your obedient servant,

MARK A. SMITH, *Ex-Delegate.*



I do not believe I can add anything to that.

Mr. PARSONS. Let me ask you a question: Do you claim that legally the national monument—that is, that land there as a national monument—does not exist?

Mr. HERRICK. I was quoting Mr. Smith's words; but I think that if the matter were taken into the courts it would be held that it does not exist.

Mr. PARSONS. You can not take it into the courts. You might impeach the President for creating it; but when he creates it, it legally exists.

Mr. HERRICK. No; but the President has only authority from Congress to set aside an area as small as possible; and he has not done that. The President can not transcend the powers of Congress conferred on him legally.

Mr. PARSONS. I do not think you can test that in the courts in any way. The only way you could test it would be by impeaching the President. It is, *de jure*, a national monument.

Mr. HERRICK. It was the ex-President that did this, of course.

Mr. OPPMANN. I want to say, Mr. Chairman and gentlemen, before we break up, that it is a matter of pride on my part to have this road built. It is not so much money making as making a monument. I am retired from business, and the financing of the matter is in the hands of four men. We have a couple of other gentlemen from Arizona with us. But this is more of a monument than a money-making matter. All the same, we want to have a fair return on it.

Mr. NEAL. We wish to thank you, gentlemen, for the courtesies we have received to-day. In four years' time, this is the first time we have had an elaborate hearing.

(Adjourned at 1.25 p. m.)

## EXHIBIT A.

### A WORKING PLAN FOR GRAND CANYON NATIONAL MONUMENT.

[By W. R. Mattoon Forest Examiner, Forest Service, District III, United States Department of Agriculture.—June 28, 1909.]

#### PART I.

##### GENERAL SCOPE OF PLAN.

The following report constitutes a working plan for a portion of the Grand Canyon National Monument. The major part refers particularly to a strip about 30 miles in length on the south side of the canyon. This strip includes Grand View and Grand Canyon and is the portion of the canyon most accessible to visitors.

The more important features to be considered in the present plan are:

1. Plan of protection against forest fires.
2. System of government roads and trails.
3. Questions of boundary, public signs and information maps for tourists, ranger stations and district ranger plan, special uses and camping sites, and railroads in the national monument.

As will be shown later, relatively little has been done to open up this "masterpiece of world's sculpture" to the public. Practically all the existing improvements are the results of private enterprise and capital. The development of the Grand Canyon is a task too great in its proportions and a matter too world-wide in its significance and popular and scientific interest to be handed over to or attempted by private enterprise, whose interests are naturally for private gain rather than for the benefit of the public at large. The time of urgent need for the Federal Government to assert itself and take a hand actively in the development of the national monument for the benefit and use of the public at large has arrived.

The Grand Canyon throughout its length of 217 miles, with a varying width of from 10 to 20 miles and a depth of approximately a mile, is inclosed on both sides by high plateaus with generally smooth surfaces reaching to the very edge of the canyon's rim. This rim is very precipitous on the inner side and its outline constitutes a series of projecting points between which are great receding basins or amphitheaters. The possibilities of scenic development at moderate expense are likely unequalled in any other part of the world.

At present the Grand Canyon Railroad, a part of the Santa Fe system branching from the main line at Williams, Ariz., is the only regularly operating means of reaching the canyon. Previous and for a time subsequent to the opening of this road a few years



ago, regular stage lines were operated from Flagstaff, Williams, and Ash Fork across about 60 miles of the intervening country.

A series of photographs shown in plates 1 to 15, inclusive, illustrate special features brought out in this report, and views shown in plates 16 to 20, inclusive, give a more comprehensive idea of the size and attractive scenery of the canyon.

In this plan the details and specifications have been worked out for each of the various improvement projects, which, together with the photographs and exhibits, account for the bulkiness of the report.

#### FIRE MENACE AND PROTECTION.

There are two forest rangers within the national monument on the south side of the canyon. One is stationed about three miles west of the Grand Canyon, and one the same distance east of Grand View, an intervening distance of approximately 20 miles. The country is generally flat, with very few, if any, general lookout points. There is no telephone service in the region. The forest cover, of good density, is a further means of precluding any general view. (Pl. 4.) The population is very small, due to the great scarcity of available water. This fact accounts also for the limited possibilities of camping sites throughout the region.

A branch of the Santa Fe Railroad crosses the belt of timber for a distance of 15 to 20 miles, and each year fires are set along the line by the coal-burning engines used as extras during periods of heavy traffic. The long dry period from April to July is coincidently a time of prevailing strong, southerly winds. This fact, together with the upward slope of the country in a northerly direction to the very edge of the rim, and the inflammable character of the juniper-pinon forest are conditions favorable to severe fires.

Fires have been numerous in the past, and along the rim occur many broad tongues of fire slash that have originated to the south. This is particularly true around Hermit Basin and westward. (Pl. 7.) A large fire in 1902 burned an area of several sections along the rim north  $1\frac{1}{2}$  miles east of Grand Canyon. The official report at the time gives the cause as unknown, but shortly afterwards it was definitely fixed as due to carelessness in leaving a camp fire. (See attached Pls. 9a, 9b, and 10b.)

Although the forest officers during the past few years have a good record in getting fires under control before they reached the rim, the fire menace is great and constantly increasing with the greater number of tourists. Any destruction of the forest along any portion of the rim must be looked upon in the nature of a national calamity.

A fire-protection plan for this portion of the national monument is given in a latter part of this report.

#### ROADS.

With a single exception all the roads in the region are mere wagon trails cut through the juniper and pinon forest so as to follow natural courses. (Pls. 4a and 7b). The exception is about  $2\frac{1}{2}$  miles of road from Grand Canyon to Hopi Point, improved under special-use permit by the Santa Fe Land Improvement Company. This is the only road traversable throughout the entire year. The most of

the roads are impassable during the winter months when tourist travel is the heaviest. The schedule of drives of El Tovar Hotel includes Grand View, a distance of 14 miles; Yavapai Point, 2 miles; and Hopi Point, 2 miles. None of these roads follow the rim, but each touches it at a single point. Thus in the stretch of 28 miles between Hermit Basin and Grand View only three points and two amphitheaters, the latter at El Tovar Hotel and Grand View Hotel, out of a score or more, are accessible to the public. A scenic driveway along the rim is very much needed, and public interests make it important that this be built by the Government.

The improvement of certain of the interior roads and the construction of a scenic driveway along the rim are matters of very great public interest and should be done only by the Federal Government. The subject is treated more fully in a subsequent portion of this report, where a system of roads and trails of various classes is outlined.

#### TRAILS AND BRIDLE PATHS.

Out of a total of five trails descending from the rim to the river, the Bright Angel trail alone is kept up in good repair, and one or possibly two are at present impassable. (Plate 17b.) The Bass, Boucher, and Hance trails were built by private enterprise and capital.

On the rim, with rare possibilities of developing scenic views at small cost, for a distance of 10 to 18 miles in either direction from Grand Canyon, no improvement whatever has as yet been done. A very rough, stony path leads eastward for  $1\frac{1}{2}$  miles to Yavapai Point along the rim.

A bridle and foot path along the rim would mean very much to the traveling public, and especially to the large number of people who wish to see the canyon independently as pedestrians or equestrians.

Prior to the construction of a rim road a bridle path will do more than any other means to open up the canyon to the public, while certain trails are much needed for protection against fire.

#### SUMMARY OF COST OF RECOMMENDED IMPROVEMENTS.

The cost of the various improvements recommended for the next five years amounts to \$119,300, itemized as follows:

Fire-protection plan.....	\$7, 450
System of roads and trails.....	107, 500
Landing platforms (provisional).....	1, 500
Official road and station signs.....	170
Shelters and seats.....	550
District ranger headquarters.....	2, 000
Improvements, Rowe Well ranger station .....	130
	<hr/>
	119, 300

Of this amount the expenditure of \$1,500 for landing platforms and walks is provisional. The sum of \$100,000 is for a scenic driveway along the rim. The latter includes reimbursement to the Santa Fe Land Improvement Company for 8 miles of this scenic roadway.

The amount for fire protection, improvement of roads and trails, and necessary construction work, excluding the items given in the above paragraph, is \$7,800.



An appropriation of \$20,000 would best be spent in constructing 3 miles of scenic roadway east from Grand Canyon and in providing the items included in the above amount of \$7,800.

*Recommendation.*—That consistent efforts be made to secure from Congress at the next session a special fund in the sum of \$20,000, and thereafter for each of the following four years the sum of \$25,000, to be expended for fire protection, roads and trails, and minor permanent improvements.

#### SUMMARY OF RECOMMENDATIONS.

1. A change in the boundary of the national monument, making an addition of about 11,200 acres.

2. A fire-protection plan for about 30 miles along the rim of the canyon. (See also p. 29.)

3. A scenic driveway along the rim from Grand View westward to Hermit Basin. The improvement of certain interior roads, and the construction of trails.

4. The approval of the special-use agreement, May 3, 1909, in favor of the Santa Fe Land Improvement Company, for public roads, buildings, and landing stations.

5. Regulation of automobile traffic within the national monument.

6. The publication of an official guide map of the canyon for the general public.

7. Proclamation signboard, fire warning, and road and station signs.

8. Erection of shelters on Hopi and Yavapai points, and seats along the rim.

9. The removal of advertising signs within the national monument.

10. The prohibition of the use of firearms within the monument.

11. (a) Notification to clear up rubbish on the special use tract of J. G. Vercamp.

(b) Removal of board "shack" just east of above tract.

12. Establishment of district ranger headquarters at Grand Canyon.

13. Improvements, consisting of rustic yard fence, walks, and driveway, at Rowe Well ranger station.

14. Two sites for camp grounds and residence permits.

15. Establishment of experimental forest planting plats for yellow pine and pinon.

16. The development of public roadways and trails in contrast to railroads as a means of opening up the canyon without endangering the scenic beauty and the personal safety of the tourists.

17. Action to secure special congressional appropriation for fire protection, roads, trails, and other improvements.

#### PLACES OF IMPORTANCE REFERRED TO IN THIS REPORT.

Brief mention of some of the more important places and points of interest will be helpful in the considerations which follow. Map, Exhibit 9, shows the location.

*Grand Canyon.*—The terminal of the Grand Canyon Railroad (Santa Fe system) and the central point along the south rim of the canyon. Its location is at the head of one of the large receding amphitheaters, Indian Garden Canyon, lying between Yavapai Point on the east and Maricopa and Hopi points on the west, all of which are a few hundred feet higher in elevation. Its altitude is



6,866 feet. El Tovar and Bright Angel hotels are under the management of Fred Harvey, while limited accommodations are afforded by several private outfits. Bright Angel trail to the Colorado River starts from this point. The region is very dry and affords no permanent water. The Santa Fe Company hauls in by rail an average of about 100,000 gallons of water daily for its use.

*Grand View.*—Located on a retreating portion of the rim 14 miles by wagon road east of Grand Canyon. There is a well-equipped hotel (temporarily closed), and other private accommodations for tourists. The competition at Grand Canyon is chiefly responsible for the ill prosperity of the place, which, prior to the entrance of the railroad, was the terminal of the stage route from Flagstaff, at that time the main gateway to the canyon. The post-office at this point has been abandoned.

*Grand View Point.*—Doubtless the most commanding point on the south side of the canyon. Located about 1 mile west of Grand View Hotel. The point is held under the mineral laws as a mill site in connection with unpatented claims of the Grand Canyon Copper Company, whose trail into the canyon starts at this point. Regular daily trips by stage from Grand Canyon are scheduled under the management of the Santa Fe Land Improvement Company. Several thousand people make the trip annually.

*Hopi Point.*—This is the most scenic point in the region about Grand Canyon. (Pl. 16a, 18f, 20b.) It lies 2 miles northwest of El Tovar Hotel, and regular stage trips are made twice daily from that hotel. It is a commanding point, and capable of much development by shelters, seats, and walks. It is proposed to connect this and Grand Canyon by a well-constructed bridle and foot path.

*Sentinel Point.*—A narrow far-projecting point one-fourth mile east of Hopi Point. Prof. W. H. Holmes, in a preliminary examination of the region, selected this as the point best adapted for the proposed monument to Major Powell, for which Congress has appropriated the sum of \$5,000.

*Yavapai Point.*—This, together with the smaller and closely associated Grandeur Point, constitutes the first prominent point east of Grand Canyon. Two daily stage trips are made from El Tovar Hotel, a distance of 2 miles by road, or  $1\frac{1}{2}$  miles along the rim.

*Cataract Canyon.*—This is the most impressive and interesting point for a side trip from the Grand Canyon. It is about 40 miles northwest of Grand Canyon, contains a series of very beautiful falls in a narrow canyon, and is the home of the Havasupai Indians. It is visited annually by many tourists and scientists.

*Dripping Springs.*—This is reached by a ride of 9 miles west over an interior road through the forest, followed by a descent of 1,000 feet on a trail leading into Hermit Basin. A diffused stream of clear cold water issues from a crevice in an overhanging wall of pure white sandstone. The place is particularly attractive. Mr. Louis Boucher, one of the early pioneers in the region and a man of notable courtesy, has a camp here and acts as guide for tourists over his trail to the river and elsewhere in and about the canyon.

*Hermit Basin.*—A mammoth amphitheater, retreating nearly 3 miles from the main rim of the canyon, and about 2 miles in width. (Pl. 19a.) It presents a series of sheer walls, from 3,000 to 4,000 feet in height, and contains a small stream of clear water broken into cascades and rapids. The proposed rim road of the Santa Fe Land



Improvement Company extends 8 miles westward from El Tovar Hotel to the east rim of the basin, where the proposed Santa Maria trail starts its descent to the river, about 4,000 feet below.

*Rowe well.*—This is likely the only well of water along the rim proper on the south side of the canyon. It lies  $3\frac{1}{4}$  miles southwest of Grand Canyon on the road to Dripping Springs and Cataract Canyon, and is visited by many tourists. The well is in solid rock and located on an unpatented mill site. Closely adjacent to the mill site is the Rowe Well ranger station, which is the headquarters for the ranger in this district.

*Red Butte.*—This remarkable slightly volcanic peak is located about 20 miles south of the canyon and commanding a clear view of all the national monument and practically all of the Grand Canyon division of the Coconino National Forest. Its consideration is its strategic importance and value as a lookout point for fire patrol and protection.

## PART II.

### BOUNDARY OF NATIONAL MONUMENT.

With one exception the national monument boundary is satisfactory. The chief factor to be considered in the matter is the question of patrol and protection against fire and other forms of trespass. The present boundary wholly excludes the Grand Canyon Railroad (Santa Fe system), together with its terminal site on the rim at Grand Canyon, and approximately 12 sections of reserved public lands in the vicinity. It is safe to say that more than nine-tenths of the people visiting the canyon come by the railroad and congregate mostly at this point along the rim of the canyon.

The fire menace is serious all along the rim during six to eight months of the year, but the situation is most extreme in the region about Grand Canyon. The sources of danger are the tourists and the coal-burning locomotives, which are used as extras during periods of heavy travel. The low branching character of the juniper and pinon and dense stands of rabbit brush (*Artemesia tridentata*) and tar bush (*Cowania Mexicana*) readily create a fierce crown fire. One large fire, causing a complete burn of several sections in area and ending at the rim, and many small fires have occurred in this excluded area during the past few years.

The inclusion within the national monument of the region south of Grand Canyon is urgently needed. By its exclusion it is poorly protected, especially against commercial enterprises, whereas efficient protection for the benefit of the public is more urgently needed here than at any other point. The Grand View road constitutes an important fire line and should without fail be included with sufficient margin on the south.

The boundary or the game preserve should be changed to coincide with the national monument.

*Recommendation.*—It is respectfully recommended that that portion of the Coconino National Forest lying in a general south direction from Grand Canyon shown on the accompanying diagram, marked "Exhibit 11," and containing approximately 11,200 acres, be proclaimed as an addition to the Grand Canyon National Monument. Also, that the boundary of the game preserve be changed to coincide with the proposed national monument boundary.



## FIRE-PROTECTION PLAN.

## CONDITIONS AND FIRE MENACE.

The forest cover extends along the rim of the canyon in a strip 15 to 20 miles in width and generally maintains a good density. The intrinsic value of the forest is insignificant as compared with its scenic value as a setting or border to the greatest piece of world's sculpture. The juniper-pinon type prevails and because of its low-branching habit this type of forest is particularly subject to severe crown fires.

Fires have repeatedly crossed this margin of timber, causing some extremely unsightly burns. A serious fire, perhaps the worst in the history of the region, occurred in 1902, or about four years after the creation of the national forest. It left a strip of heavy fire slash, 3 miles in length and  $1\frac{1}{2}$  miles in width, crossing the Grand Canyon road about  $1\frac{1}{2}$  miles east of Grand Canyon and sweeping up to the rim. The injury upon the scenic features along this portion of the rim is immeasurably great.

The very dry climate causes a dangerous fire season lasting for fully six months in each year. This, together with the heavy undergrowth of low dense-foliaged shrubs and the large number of tourists inexperienced in forest ways, makes the situation extremely precarious and calls for prompt action in protecting so valuable and so rare a national asset.

## PLAN OF PROTECTION.

Certain forms of protection, such as telephone system, lookout towers, and an active, public-spirited cooperation, are recognized as of basic importance. Fire in the woodland type is prevailingly a top fire, and in a strong wind nothing except a cleared strip 200 to 300 feet in width will check its advance. However, the practicability of clearing such a strip is doubtful, mainly due to its very high cost.

Thorough patrol and quick action in fighting fires, supplemented by minor clearing along roads and trails, must be depended upon and should prove effective in nearly all cases. It will be necessary for the Forest Service to furnish an ample supply of fire-fighting tools and distribute these at known stations. Due to the very sparse population and especially the absence of ranch outfits, the local stock of tools is exceedingly small. Detailed plans for the organization of protective measures follow this paragraph.

These will be discussed under the following heads: Telephone system, fire-equipment stations, fire-patrol towers, roads and trails, signs, public cooperation.

## TELEPHONE SYSTEM.

Detailed plans and estimates for a telephone system covering this portion of the national forest have been prepared and submitted by the officers in charge of the forest. These plans, when carried out, with some important changes, will solve the larger part of the present problem. The proposed line is from Red Butte, a strategic lookout point, 20 miles south of the canyon and commanding all of the Grand Canyon division of the forest, as well as the northern portion of the main division, 10 miles west to Anita, on the railroad; thence 17 miles north to Rowe well ranger station; thence 20 miles eastward to Hull tank ranger station.



Changes should be made in the plans to run the line via El Tovar Hotel, with three connections, as follows: At El Tovar, Grand View, and a fire-patrol station box at the east end of the Grand View cut-off trail, midway between Grand Canyon and Grand View. Also, a branch line 2 miles in length from Grand Canyon to the fire-patrol tower on Hopi Point. Exhibit 10 shows the proposed lines.

A summary of the cost, revised to include the suggested changes, is here given:

Red Butte to Anita, distance 10 miles, cost.....	\$1, 000
Anita to Rowe well, distance 17 miles, cost.....	1, 450
Rowe well to Hull tank, distance 21 miles, cost.....	800
Total cost.....	3, 250

The construction of this line is the key to the whole problem of protection against destructive fires.

*Rowe well to Hull tank.*—Of the first importance in efficient fire protection is a telephone line connecting the two stations at Rowe well and Hull tank and several intermediate stations. The former is 3 miles southwest of El Tovar and the latter 3 miles east of Grand View. Upon the completion of the proposed company's line from El Tovar to Hermit Basin and the above line, the entire stretch of the rim of local scenic importance will be covered, an air line distance of about 23 miles representing approximately 30 miles of the rim of the canyon.

The most practical route is from Rowe well ranger station along the road to El Tovar, then along the present road to Grand View, and on to Hull tank ranger station. The total distance is close to 21 miles. An intermediate patrol-box station should be established along the line at the east junction of the cut-off trail about midway in Long Jim Canyon. Yellow pine trees can be utilized to a very great extent; for this reason it will be better to follow the road instead of the cut-off trail, which crosses over ridges having low pinon-juniper type. (Pl. 4b.)

The road is a scenic driveway through the forest; therefore, it is very important that the line be located whenever possible at a suitable distance back from the road, in order not to detract from the natural forest beauty.

The intermediate stations in the forest should be near the road and plainly labeled with signs: "U. S. forest service fire signal station."

At Grand View Mr. P. D. Berry is the only person with quarters at present open all the year. Mr. Berry is a permittee and well disposed to cooperate with the service. Mr. Brant, manager of the El Tovar Hotel, is particularly alert on the questions of fire danger and need of patrol and may be depended upon for liberal interest and cooperation in putting this system into effect, and especially in aiding in fighting fires. The local telephone boxes should be placed in private office rooms in the hotels, so as not to be too freely accessible to the public. Mr. Brant, of El Tovar Hotel, fully consents to this plan if desired by the service.

#### FIRE EQUIPMENT STATIONS.

A plan for a fire-tool house (Exhibit 8) has been prepared after careful consideration of the existing needs. The construction is essentially a large box 5 feet high, 4 feet wide by 10 feet long, with a sloping roof, raised on cedar posts 1 foot above the ground. Fire

equipment houses should at present be located at three points lying intermediate between the two ranger stations and one to the west. At each of the ranger stations full equipment will also be kept, making a total of six fire stations. The location for these houses is shown on map (Exhibit 10) and is as follows:

- (1) Grand Canyon, near El Tovar stables.
- (2) Long Jim Canyon, at east end of Grand View cut-off trail, approximately southeast corner sec. 5, T. 30 N., R. 3 E.
- (3) Grand View, near P. D. Berry's residence.
- (4) Dripping Springs, terminus of wagon road.

The tool house will be secured with Forest Service padlock, and one or more keys supplied to local parties; at Grand Canyon keys fully tagged should be deposited at the stables, headquarters, and hotel manager's office, and at Grand View with Mr. Berry, and during the open season with the manager of the hotel. One or more responsible drivers from the El Tovar stables should be provided with keys for use at the tool houses and fire-patrol telephone stations.

The standard equipment of each tool house and the cost is given below:

6 rakes (medium asphaltum, 15-inch iron shank).....	\$9. 00
6 shovels (long-handled, pointed).....	9. 00
5 axes (3½ pounds, double-bitted).....	6. 90
2 saws (5 foot-wide champion blade).....	8. 00
1 doubletree.....	3. 00
25 blocks California matches.....	. 10
Cost of equipment.....	36. 00

The same equipment should be kept specially for fire use at the two ranger stations. All fire tools should be painted with two wide bands of red, as a distinctive mark, and also branded "U. S." with a steel die. This will greatly reduce the liability of their being removed for uses other than fire.

*Specifications for tool house.*—The accompanying Exhibit 8 shows the construction. The frame of 2 by 4 inches rests on six cedar posts at 1½ feet in the ground; the siding and floor is tongue-and-groove flooring; the roofing shingled. The building to be painted white, with green stained on roof, two coats each. Signboard 10 by 36 inches, black with white letters, as follows: "Forest Service fire-equipment station."

A small signboard should be placed on the door informing the public where keys are kept. There is no painter to be had locally, otherwise the large sign might be painted on the building.

The material needed for one house is as follows:

12 pieces, 2 by 4 by 10, No. 2 common.	
18 pieces, 1 by 4 by 12, No. 2 common.	
6 pieces, 1 by 4 by 12, No. 1 common (sls).	
19 pieces, 1 by 10 by 10, flooring.	
4 pieces, 1 by 10 by 16, flooring.	
400 shingles, Star A redwood.	
Lumber.....	\$15. 75
Nails, clasp, hinges.....	4. 25
Paint, stain.....	5. 00
Material.....	\$25. 00
Labor, 3 days.....	12. 00
Cost of building.....	37. 00



This makes a total cost of \$70 for a fire station and equipment. These tool houses, especially the one at Grand Canyon, will be useful to the forest officers for some incidental purposes. A rigid policy must be maintained in order to keep the tools up to the full quota and to bring the holders of the keys into full cooperation.

The cost of four stations fully equipped, including material and labor, will be \$280.

FIRE-PATROL TOWERS.

1. *Outside the national monument—Red Butte.*—The strategic location of this mountain has already been given. A steel tower with a platform 30 feet in height will be necessary in order to obtain a clear vision above the trees and shrubs. A standard windmill tower 40 feet in height will be satisfactory, allowing for the platform 10 feet below the apex. The cost of the tower complete in place will be \$100.

2. *Within the National Monument.*—Complete dependence for safety can not be placed upon the Red Butte lookout station, especially for detecting in their early stages fires of local origin. Supplemental towers at a few commanding points along the river are essential. Three such towers will fully cover the zone of greatest danger. (Exhibit 10.)

(a) *Hopi Point.*—This is by far the most commanding point in the region about Grand Canyon. The location is 2 miles northwest of El Tovar Hotel and 3½ miles from Rowe Well ranger station. This point of all along the rim is most visited by tourists. It is completely forested with a stand of juniper and pinon.

The small wooden tower, which is being erected this spring near the point will doubtless give good results, but it should be replaced at an early date by a taller steel tower readily accessible to the tourists.

A substantial steel tower with platform and railing would combine a comprehensive view of a wide strip of forest extending for more than 40 miles along the rim, with a particularly commanding view of the canyon. (Exhibit 7.) A special feature of such a tower would be its value in advertising the policy of the Federal Government in maintaining a fire patrol; also a certain amount of cooperation in reporting fires can be expected from the thousands of people who would annually visit the tower.

At the foot of the stairway a signboard should be placed calling public attention to the serious danger from fire, and requesting cooperation by reporting to stage drivers and hotel managers any occurrence of fire. The value of this feature will undoubtedly be very great. A small shelter house will be needed close by for the accommodation of the forest officer during periods of special patrol at the tower.

*Specifications.*—A 4-post steel tower, 43 feet in height, 26 feet wide at the base, and 10 feet at the top platform, with two intermediate landings. Platforms and stairs to be of wood. The plan and dimensions are shown on the accompanying diagram. (Exhibit 7.) The cost of these improvements is estimated as follows:

Steel tower, 43 feet high.....	\$750
House, 1 room, frame, 10 by 12 feet.....	150
Total.....	900

Public signs will be essential. A small direction sign at the point where the trail to the tower leaves the main road, as follows: "To fire-patrol tower."

A warning sign at the tower is suggested as follows:

FOREST SERVICE,  
U. S. DEPARTMENT OF AGRICULTURE.

FOREST FIRES.

The Grand Canyon National Monument is patrolled and protected at government expense for the benefit of the general public.

All persons are requested to cooperate by reporting to the government officers or the managers of hotels any occurrences of fire.

The cost of these signs is included under the general discussion of signs.

(b) *Grand View*.—At some point in the vicinity of Grand View to be selected. This will likely be on the ridge east of Grand View Hotel, along the road to Hull Tank Ranger Station. It can not be closer to the station than about a mile because of the location of the latter in a low valley.

(c) *Rowe Well Ranger Station*.—This is a permanent station near Grand Canyon, located 3½ miles from El Tovar Hotel. A rise of ground close by the ranger house gives a good command of a large territory to the south and west. The tower at this point will be subsidiary to the tower on Hopi Point, a distance of 32 miles. The importance of a tower here comes from its ready accessibility, permitting frequent observations especially between sunset and sunrise when the conditions for detecting fires are especially favorable, and the command of a large scope of forest south and west of Grand Canyon where the fire menace is greatest. A 60-foot steel tower of windmill pattern with top platform 50 feet above ground should be erected on the ridge, at a distance of about 60 rods northwest of the house. The cost will be about \$90.

*Recommendation*.—It is respectfully recommended that the supervisor be asked to report on the most suitable location for a fire-patrol tower in the region between Grand View and Hull tank.

*Summary*.—All towers should be connected with the main telephone system. The estimated total cost of the fire-patrol towers is as follows:

Red Butte.....	\$100
Hopi Point (including house).....	900
Grand View.....	100
Rowe Well.....	90
Total.....	1,190

FIRE LINES.

It hardly seems practicable at present to clear wide fire lines in the monument. While only a clear cutting from 250 to 300 feet wide can be relied upon to stop crown fires, the large cost of construction is prohibitive. The most widely effective and at the same time economical plan is to rely upon a complete system of telephones and fire-patrol towers, and the removal of débris and opening small guide



lines along the roads. The improved road system will form a sufficient basis for backfiring and otherwise checking ordinary fires.

The railroad is at present the chief offender in starting fires, yet the line forms a fire break from the west and northwest. Its efficiency, however, is decreased by the coincidence of its course with the direction of the prevailing winds from the southwest.

*Roadway, Grand View to Cataract Canyon.*—This road runs through the timber at an average distance of 1 to 3 miles south of the rim and forms the most practical fire line in the monument. It greatly needs the clearing of débris and the formation of guide lines as a check against fire.

About 3 miles of this road, directly south of Grand Canyon, has become very rough and is little traveled, being substituted by a loop to the north running through Grand Canyon. For reducing fire menace, this old road should be changed from its present course in a depression to a smooth topped ridge to the south, as described elsewhere in this report under the subject of roads.

From Grand Canyon to Grand View about three-fourths of the total distance of 14 miles is through an open yellow-pine stand, with pinon and juniper, scrub oak, and buck brush scattering in clumps and small thickets. The remainder of the distance is divided between  $1\frac{1}{2}$  miles of clean burn (plat 9) and about the same distance of rather dense pinon and juniper (see photographs shown in pl. 4). Leaf litter has accumulated during the past few years and forms a serious fire menace during about six months each year along the road, which is much traveled by tourists. The chief menace is from lighted cigars and cigarettes discarded by careless travelers.

The road west of Grand Canyon parallels the railroad for about 3 miles, where no protective improvement is needed, then turns westerly through a pinon-juniper stand of good density. The opening is narrow, and over considerable portions dead and down trees and an old brush fence constitute a serious fire menace. The removal of this débris is extremely urgent. (See photos shown in pls. 5 and 7.) Toward Dripping Springs the road penetrates a dense stand of underbrush (*Artemesia tridentata*), as shown in plate 7a. It is the united testimony of the rangers that in this type of cover fire burns fiercely.

Between the two extremes of adopting wide fire lines and relying merely upon the ordinary roadway clearing of 7 to 9 feet lies a point where the construction of fire lines is reduced to a practicable basis. As a result of a careful consideration of the problem, the following treatment along the roads and trails is recommended. It will be discussed under three heads, corresponding to as many conditions of forest cover: Open yellow pine, juniper-pinon, and brush type.

(a) *Open yellow pine* (pl. 4b).—The cover is considerably open, with clumps of juniper and pinon and small thickets of scrub oak. Grass and leaf litter make up a thin ground cover, which will increase in density with the more effective exclusion of stock. The surface is generally smooth. The chief danger from fire is carelessness of tourists in throwing away lighted matches or smoking materials.

The essential points of treatment here include—

(1) Cutting dead stubs and removing all dead trees and débris from a strip 100 feet on each side of the road.



(2) Opening guide lines at a distance of 20 feet on each side of the road. These will consist of two to four plow furrows. In rocky soil this should be substituted by a strip 2 feet wide cleared and raked. The purpose is to check in their incipient stages fires originating near the road. This type prevails over the road between Grand View and Grand Canyon and for a half mile east of Rowe well. The road from Grand Canyon southeast a distance of  $3\frac{1}{2}$  miles to the road under consideration is similar in character and should receive the same treatment. About 1 mile of the distance is in a complete burn. The number of dead stubs and fallen trees is not large, and smooth, though shallow, surface soil is quite common throughout. There are about 10 miles of this type.

The cost of clearing is estimated at \$175 per mile, a total of \$1,750 for the 10 miles.

(b) *Pinon-juniper type* (pls. 4a, 5b, 7b).—This type occurs for a mile east of the head of Long Jim Canyon and westward from the junction of the old cut-off road on the Grand Canyon road. The stand is usually dense and open only by the narrow roadway, 8 to 11 feet in width. The tree crowns are always low branching, and this effect is augmented in many places by an abundance of low bushy shrubs, mainly oak, *Cowania*, and *Artemesia*.

West of Rowe well a strip about three-fourths of a mile in length was cleared about a year ago, and the slash thrown along the road. It is a very dangerous fire menace, as well as extremely unsightly. It should be disposed of under free use, or piled and burned. The sum of \$75 was spent in the cutting of three-fourths of a mile in distance. To clear up the slash will require an additional \$50.

This forest type presents the most serious fire menace, yet it is hardly practicable to open up fire lines of sufficient width to check a top fire. Patrol and quick action must be relied upon for protection.

The essential measures to adopt in protection are:

(1) Clear the roadway to at least 30 feet in width. Since the danger is largely from the south, the strip should be more largely on that side of the road. From 15 to 18 feet of actual clearing will in most places be required. This is provided for over a distance of about  $2\frac{1}{2}$  miles by necessary road construction, recommended elsewhere in this report.

(2) Remove all dead trees and débris from a strip 60 feet in width on either side of the road. This is over twice the average height of the forest cover.

The demand for firewood is limited, but an effort should be made to sell as much as possible and dispose of the remainder by free use. Between Grand View and Dripping Springs there are about 6 miles of this type, exclusive of the stretch of the old cut-off road figured elsewhere. The cost of clearing, based on similar cutting west of Rowe well, where the slash was not disposed of, as specified above, is estimated at \$150 per mile, or a total of \$900 for the 6 miles.

(c) *Brush type* (pl. 7a).—Repeated fires have opened up portions of the pinon-juniper forest, which have subsequently produced a dense stand of shrubs, chiefly buck brush (*Artemesia tridentata*). The photograph, plate 7a, shows a typical stand. This condition is now prevalent west of Rowe well from the fork of the Dripping Springs road westward. This type creates a hot, sweeping fire.



This artemesia is easily cut and does not sprout from stump or root. It starts readily from seed, but is a moderately slow grower. Thus clearing is relatively inexpensive and will be effective for a period of several years. The shrub averages about 3 feet in height.

A clearing in the road and for a distance of 12 feet on the south side should be made through this type. There is about 1 mile of this type along the Dripping Springs road, and the cost of clearing is estimated at \$40 per mile.

*Summary of fire lines.*—The cost of adequately protecting the Grand View-Cataract Canyon road from Grand View as far west as Dripping Springs, a distance of about 18 miles, is summarized below:

Yellow-pine type, road fire line, 10 miles, at \$175.....	\$1, 750
Pinon-juniper type, road fire line, 6 miles, at \$150.....	900
Brush type, road fire line, 1 mile, at \$50.....	50
Total for 15 miles.....	2, 700

Three miles of the total distance east of the railroad track is provided for elsewhere under the subject of road construction.

*Signs.*—The use of appropriate fire-warning signs at important points has been mentioned under the foregoing paragraphs. They should be placed at fire-patrol towers, equipment stations, and at the large burn east of Grand Canyon. The warning is included on the large information sign to be placed in front of El Tovar. A list of the signs is given under the heading of "Official information and warning signs."

#### PUBLIC COOPERATION.

The interest of the management of the various hotels in reducing the fire menace is primarily a matter of business consideration. The present condition is quite gratifying, and the local forest officers have received good support in fire patrol. In line with the present movement to provide a more complete fire-fighting equipment, a more definite understanding and cooperation should be brought about between the forest officers and the local management of the various hotels.

#### SUMMARY OF COST OF FIRE-PROTECTION PLAN.

A summary of the estimated cost of putting into effect the above fire-protection plan is itemized, as follows:

Telephone system.....	\$3, 250
Fire-patrol towers.....	1, 190
Fire-equipment stations.....	280
Fire lines.....	2, 700
Signs.....	30
	<hr/> 7, 450

This amount may be compared with the cost of artificially restocking a section of burned land, such as the recently burned area east of Grand Canyon where over three sections were completely burned. Forest planting at present can not be done in the dry Southwest for less than \$20 per acre, or \$12,800 for reforesting a single section of land. The very high value of the existing forest cover justifies this amount of protection, which represents the minimum that should be considered. The annual expense of keeping up the protection plan is estimated at \$300 for the following five years, which brings the total up to \$9,140 for the period to 1915, inclusive.

## SYSTEM OF GOVERNMENT ROADS AND TRAILS.

## SYNOPSIS.

The region from Grand View on the east to Hermit Basin on the west, a distance of 30 miles along the rim, is the center of public travel at the canyon. The region has no scenic roads, and none except a few interior roads of poor construction. A system of good roads is very greatly needed.

Action is respectfully recommended toward securing a congressional appropriation amounting to \$7,500 for immediate use on roads (see recommendation, p. 8), and as the initial movement for an expenditure of \$107,500 during the next five to ten years. The different projects and the amounts needed for each are described in subsequent paragraphs.

Ultimately the zone of government improvement of roads and trails will lie between the Little Colorado River on the east and Cataract Canyon on the west, a distance of about 80 miles.

The general map accompanying this report and marked "Exhibit 10," shows the complete road system for the region about Grand Canyon.

## EXISTING ROADS AND TRAILS.

(1) *Roads*.—Within the portion of the national monument and region about Grand Canyon under special consideration, there are about 45 miles of road, of which a little over 2 miles, from El Tovar Hotel at Grand Canyon to Hopi Point, is traversable during the entire year. This is due to improvement work done in 1907-8 by the Santa Fe Land Improvement Company, at a cost of about \$8,000. The road to Grand View, a distance of 14 miles from Grand Canyon, follows a meandering course along lines of least resistance. A small amount of work has been done by the Grand Canyon Copper Company, but this road is practically impassable during several months of wet weather each year. A branch road of 1 mile leading to Yavapai Point and a road from Grand Canyon south to Rowe Well Ranger Station, a distance of 3 miles, are in about the same condition. All the remaining roads are narrow lanes cut through the forest along the easier courses. They often follow depressions and are badly subject to surface erosion.

The management of El Tovar Hotel maintains a well-equipped livery and in good weather have regular drives scheduled to three points along the rim; namely, Grand View, Yavapai Point and Hopi Point. It frequently happens that during periods of several weeks at a time in the winter and early spring months, when travel is regularly at its highest mark, only the trip of 2 miles to Hopi Point can be made. Visitors are able thus to see the canyon at only two points, whereas for a distance of 10 miles to the west and 18 miles to the east the rim presents a continuous series of preeminent points and intervening amphitheatres, from any of which the view is panoramic and very impressive.

(2) *Trails*.—A cut-off trail about  $2\frac{1}{2}$  miles in length on the Grand View road is practically the only trail in use above the rim. Natural paths have grown up along the rim in the vicinity of Grand Canyon which are exceedingly rough, as shown in plates 2 and 3, and are urgently in need of improvement.



There are five trails to the river, of which the Bass trail, the Boucher trail, and the Canyon Copper Company's trail were built and are being maintained by mining interests coupled with profit received from tourist trade. Grand View trail built by the Grand View Hotel interests is temporarily out of repair, while the Bright Angel trail is kept in excellent repair. A toll of \$1 per head on each saddle or pack animal is collected by Mr. Ralph Cameron, to whom the trail is leased by the county. This is the status according to the latest legal interpretation in the course of a legal fight over the question of ownership of the trail. The proposed Santa Maria trail, for which application has been made by the Santa Fe Land Improvement Company, will descend to the rim through Hermit Basin, one of the most scenic amphitheaters of the whole canyon.

On the "plateau," which is a prominent bench of the Tonto sandstone overlying the granite, 3,300 feet below the rim, the old Tonto trail winds its way through the canyon and thus connects the various trails into the canyon. It is a dangerously rough trail.

The need for improvement of roads and trails, as elsewhere discussed, is very great. The problem is confined mainly to the rim and neighboring region rather than to the canyon itself. Plans for needed improvements will be discussed in a later portion of this report.

#### CLASSES OF ROADS.

The center of the tourist travel for some years in the future will remain as now between Grand View on the east and Dripping Springs on the west, a distance of 30 miles along the rim. From the larger standpoint, however, the zone of travel will increase over a wider strip nearly 90 miles in length from the Little Colorado River on the east to Cataract Canyon on the west. Within the smaller zone a more active government control and permanent improvements are urgently needed, while in the larger area progress will naturally be extended over a longer period.

All existing and prospective roads can be considered under two classes with reference to their location:

- (1) Interior roads.
- (2) Roads along the rim.

Again, some roads will be main arteries for travel, while others will be used less frequently and for other purposes, such as fire lines. The former may be designated roads of the first class and the latter second-class roads.

All existing roads are interior roads, which either directly or by branches touch the rim at a very few places. The final road plan includes roads of both classes.

#### ULTIMATE ROAD SYSTEM.

The ultimate road system, looking many years into the future, should consist of the following roads:

- (1) An interior road from Little Colorado River on the east to Cataract Canyon on the west, touching the rim at Grand View and Hermit Basin.

- (2) Branches of the above road to: Hance ranch, Grand View Point, the rim, 4 miles west of Grand View; two to Grand Canyon, one each from the east and west; Dripping Springs, Bass camp.



(3) Road along rim, from Hance ranch, north and east to Navajo Point, including Moran, Zuni, Papago and Pinal points.

Grand View west to Hermit Basin including Thor Hammer, Shoshone, Yaki, Yavapai, Hopi, Mohave, and Pima points.

The roads in this plan would all be located within the proposed boundaries of the national monument. A movement is already on foot for a trunk-line roadway from southeastern Arizona through Flagstaff, touching the rim at Grand View.

The length of the main interior road will be about 90 miles; the total of branches, 20 miles; the rim roads, 30 miles. The total mileage is 140 miles, and the cost of construction, estimated at \$4,000 per mile, is \$560,000.

#### ROADS NEEDED AT PRESENT.

Of much greater importance are the roads needed at present. The canyon should be opened up by certain roads and trails for the immediate benefit of the public. The improvements here recommended will work out in direct harmony with the more comprehensive system outlined above.

##### (1) SCENIC DRIVEWAY ALONG THE RIM, GRAND CANYON TO GRAND VIEW.

The field to be considered lies between Grand View and Hermit Basin, a distance of about 30 miles, measured along the rim (pls. 1, 6, and 10). All existing roads are interior, mostly from 1 to 3 miles distant from the rim, and are little improved. On account of the rare scenic features and favorable topography, all road work between Grand View and Grand Canyon should be centered upon the construction of a road along the rim. The desirability of such a scenic highway is recognized by all thorough observers of the canyon. Nothing else can possibly equal this in point of opening up the canyon to the public. The grade is everywhere very low except around the heads of a few narrow side ravines west of Grand View Point.

The native rock is limestone and lies near the surface, presenting a firm, generally smooth surface. Its quality is excellent, according to reliable authority, for road construction.

The course would be along the rim over the greater part of the distance, with a cut-off of about 1 mile across the base of Yaki Point, and a connection one-eighth mile in length with the interior road at Thor Hammer. At a point about 1 mile east of El Tovar Hotel, the road should swing away from the rim to allow for parking and other improvements. The total distance is about 17 miles.

West of Grand Canyon the course should coincide with the present interior road to Hopi Point, then follow the river 6 miles west to Hermit Basin. The latter section is included in the application of the Sante Fe Land Improvement Company. The rim between El Tovar Hotel and Hopi Point should be reserved exclusively for a bridle and foot path of first-class construction, as is elsewhere considered in this report (pl. 1a).

The cost of the road from Grand View to Grand Canyon, 17 miles, at \$4,000 per mile, would be \$68,000. In case the rim road west of Grand Canyon is not constructed by the Sante Fe Company, there will be an additional 8 miles, at \$4,000 per mile, making a total of \$100,000. Accessories, such as bridle and foot paths and shelters, are discussed under their respective headings.



## (2) DRIPPING SPRINGS ROAD.

The improvement of the present Dripping Springs road, via Rowe Well ranger station, a distance of 9 miles, should be considered. With the completion of the proposed rim road to Hermit Basin and Santa Maria trail, it is likely that Dripping Springs will be reached by a short extension trail from the latter in Hermit Basin. Travel by the present wagon trail will probably be largely discontinued, as it is much less direct, and in either case a trail trip is necessary at the end of a wagon road. Under the following paragraph this is further discussed. The improvement of this road for fire protection is discussed elsewhere in this report.

## (3) CATARACT CANYON ROAD.

Cataract Canyon, the most interesting and impressive point for a side trip from the Grand Canyon, is annually visited by several hundred tourists. The distance is 38 miles to the canyon by wagon road and 12 miles by trail to reach to Indian village in the canyon. The road is a rough wagon trail, and nearly everybody rides animals the whole distance.

The first  $6\frac{1}{2}$  miles is likewise the road to Dripping Springs. While the first  $3\frac{1}{2}$  miles to Rowe Well ranger station is much traveled by officers of the Forest Service and tourists and some work has been done on this portion, yet it is rough, poorly graded, and poorly drained, so as to be very heavy in wet weather.

Since this will be the permanent route to Cataract Canyon, improvement should be commenced as soon as possible over the first  $6\frac{1}{2}$  miles from Grand Canyon west to the branch leading to Dripping Springs. The improvements needed are:

(a) Widening and straightening the right of way through the woodland forest.

(b) Grading and ditching.

(c) Clearing up wood débris, incidentally lessening fire menace.

The latter operation is covered under the discussion of fire protection. The first and second operations will prepare the roadway for later treatment with crushed rock. The amount of necessary work is not great, and the sum of \$975, or \$150 per mile, should be obtained by special appropriation for this work.

## (4) ROWE WELL TO GRAND VIEW.

An old wagon trail extends from the railroad track just east of Rowe Well ranger station, a distance of  $3\frac{1}{2}$  miles east to the Grand View road. It follows a flood-water course and is nearly impassable in wet weather. There is need for a passable road across this stretch to accommodate east and west travel, and particularly that of the Forest Service officers in getting from Rowe well to Hull tank and Red House ranger stations, and also Anita station by wagon. Secondly, this is a critical line of fire patrol and protection for the region south of Grand Canyon. The following improvements are needed:

(1) A change should be made over the western  $2\frac{1}{2}$  miles so as to bring the road on the top of the smooth ridge, as shown on map marked "Exhibit 10." The surface is very favorable for a road, the forest is juniper and piñon of open character, and the slope is well adapted for a fire break.

(2) A clearing 30 feet in width should be made along the ridge slightly on the north or leeward side to aid in fire protection. Stumps should be removed from the central strip 18 feet in width. The remainder of 1 mile of the old road at the east end will need a corresponding widening through the timber, and there will be a small amount of grading throughout.

The cost of road improvement is estimated at an average of \$250 for  $2\frac{1}{2}$  miles and \$125 for 1 mile, giving a total of \$750.

(5) ROWE WELL TO HOPI POINT.

There is some travel over the existing rough wagon trail. When a rim road is built from Hopi Point westward, the portion of the former between Hopi Point and the head of Monument Canyon will be abandoned. From the latter point southward there will always be demand for a permanent road. This latter portion, a distance of  $1\frac{3}{4}$  miles, should receive preliminary improvement, consisting of straightening, widening, and grading. An expenditure of over \$200 per mile, or \$375, is needed, and the necessary funds should be provided.

(6) GRAND VIEW ROAD.

In the final plan this interior road from Grand Canyon to Grand View is to be only a second-class road for lighter travel and fire protection. The widening and the clearing of wood débris is considered under the discussion of fire protection. Prior to the completion of a roadway along the rim all travel will pass as at present over the existing road. The road follows the depression and is unfavorably located.

The Government should improve this road and maintain it in good passable condition. The sum of \$1,400, or \$100 a mile, should be available for straightening, grading, and draining this road. Up to the present time the Government has spent no money on this road.

TRAILS.

(1) BRIDLE AND FOOT PATH ALONG RIM NEAR GRAND CANYON.

Upon leaving the train at Grand Canyon, after long hours or days of confinement in travel, a stroll along the rim at once suggests itself to a large majority of the visiting tourists.

The rim from Grand Canyon eastward to Grandeur and Yavapai points, a distance of  $1\frac{1}{2}$  miles, and westward to Maricopa, Sentinel, and Hopi points, about 2 miles, is attempted by many hundreds of people on foot, but traveled by very few on account of the exceeding roughness of the surface. This is well shown in plates 2 and 3. By long use a natural course has grown up among the pines and junipers, but it is so rough as to discourage its use after the first few minutes' walk in either direction. A remark overheard by the writer illustrates the point. A party of tourists were strolling along the rim within a few minutes' walk east of El Tovar Hotel. The men were in the lead when one of the women called out, "Come back, it's too rough out there." (Pl. 2b.)

The topography and surface admit of opening a good bridle and foot path at a relatively small cost. On account of the very central



location and urgent demand, this work should take precedence over all other trail construction. The site selected by Prof. W. H. Holmes for the \$5,000 Powell memorial seat lies along this trail to the west of El Tovar Hotel. The Government should construct a first-class bridle and foot path for the benefit of the public.

*Surface conditions.*—The topography is regular and generally level, with a range in elevation of about 250 feet in the  $3\frac{1}{2}$  miles of distance. The Aubrey limestone underlies very shallow soil or outcrops with a generally level surface, generally strewn with loose fragments. (Pls. 2 and 3.) A juniper and piñon stand of good density covers the region to the edge of the rim.

*Construction.*—The construction should proceed by three stages, namely: (1) Clearing through the trees and removing loose stones. (2) Crowning with cinders or crushed rock. This is essential to make the walk serviceable during periods of wet weather. (3) Clearing up dead trees and brush and removing a few trees along the path for scenic effect.

The course should be along the rim, generally from 20 to 40 feet distant, seldom nearer than 15 feet, and in places departing as much as 50 to 100 feet along uninteresting portions, where the screen of trees along the rim will enhance greatly the variety of scenic effect. An important point to be borne in mind is to leave a margin along the rim of sufficient width to allow people to turn off and enjoy the view without interference from passing trail animals. Seats and shelter should be provided at selected places along the route.

Considerable portions of the present course can be followed to advantage. The path should be constructed for a crown 5 feet in width. The loose rock in places should be built up along the sides to form a retaining wall for the crown filling, which is essential for covering surface irregularities and providing drainage in wet weather. The question of obtaining the material for the crown filling should be taken up with the officials of the Santa Fe Land Improvement Company. It is very probable that entirely satisfactory arrangements can be made for obtaining cinders or crushed rock, as outlined in another section of this report.

The cost per mile of the improvement is estimated as follows:

(1) Clearing, 8 feet wide in juniper-pinon type, and removing loose stones, per mile.	\$48
(2) Crowning, 5 feet, cinders or crushed rock, per mile.....	172
(3) Clearing wood débris along trail, 50 feet side.....	20
Cost per mile.....	240
Total cost of $3\frac{1}{2}$ miles at \$240 per mile equals.....	875

### (3) BRIDLE PATH, YAVAPAI POINT TO GRAND VIEW.

The rim between these two points includes Yaki and Shoshone points and several amphitheaters which are among the most beautiful and impressive. There is no trail, and on account of the low, dense forest it is difficult to walk and nearly impossible to ride over the route; the distance is about 16 miles, and has been included in a private survey for a scenic railroad. While the forest cover is low and dense, the surface is very uniform and broken only by a few side ravines, making trail construction easy and relatively inexpensive. The trail will be a forerunner of the roadway which is elsewhere considered. A bridle path with a 6-foot clearing and 3-foot path intended for trail animals only should be constructed.



*Estimate.*—The cost of 16 miles of trail is estimated at \$100 a mile, or total of \$1,600.

(3) GRAND VIEW CUT-OFF TRAIL.

A cut-off trail of about  $2\frac{1}{2}$  miles in length on the Grand View road is much used, but has never been worked out. The trail should be straightened in places, brushed out, and the loose stones removed. The work will not be heavy and the cost is estimated at \$18 a mile, or a total of \$45.

(4) CUT-OFF TRAIL EAST SIDE OF HERMIT BASIN.

Upon the completion of the proposed road by the Santa Fe company or by the Government, from Hopi Point to the east side of Hermit Basin, it is important that a trail be opened from the latter point southward to Dripping Springs road. The trail is needed for access in following the rim to Dripping Springs, Yuma, and Cocopa points. Especially as a fire line in checking fires from the west the southern end of this trail is needed at once. A route was located after a thorough search and preliminary survey and is shown on accompanying maps marked "Exhibits 1 and 10."

Starting at the proposed rest-house site at the head of the Santa Maria trail, the route is in a southeasterly direction, heading two small ravines close by, then crossing a level plateau with smooth surface. An easy drop of about 250 feet into the head of Hermit Basin occurs in the steep rock wall at a point just at the junction of the first main fork from the north. The course then follows up the main canyon about one-fifth mile, where it ascends the south wall by a small side ravine. In fact, there are several places on this side which permit of an exit trail. The route indicated is very feasible, since the writer was able to lead his saddle horse over it by removing some boulders and wood débris. The short course in the deep wooded canyon adds variety, is free from flood danger, and serves to rest the saddle stock from the steep descent or ascent. At the top of the ascent the trail should extend south to the Dripping Springs road at a point approximately  $1\frac{1}{4}$  miles west of Rowe well ranger station. Over this last stretch the surface is everywhere generally level.

*Estimate.*—The length of the trail will be close to 2 miles. Over about  $1\frac{1}{2}$  miles very little work except removing loose stones and trimming pinon and juniper trees will be required. The remainder is circling heads of bays and zigzagging across the canyon head. The former will cost \$40 a mile and the latter at the rate of \$200 per mile, or a total estimated cost of \$160.

(5) TRAILS—HERMIT BASIN AND VICINITY.

The most impressive basin or amphitheater, with a questionable exception of Grand View, is Hermit Basin. The proposed Santa Fe road runs to this, a distance of 8 miles by the river, and the proposed Santa Maria trail descends into this basin. Dripping Springs, a very attractive spot, is at one of the two heads of the basin. With the further development of the national monument several trails should be built around and in the basin.



*Trail system.*—(1) A very rough trail, following an old Indian trail, enters the basin from the extreme southern end. This trail is not needed and no work should be done on it.

(2) At the southwest corner a fairly good trail, built about 1904 by Louis Boucher, extends from the rim to Dripping Springs, a descent of 1,000 feet in altitude in a distance of about three-fourths mile. This is traveled by several hundred people each year. This trail should be put into good repair, at a cost of \$300.

(3) From this point Boucher trail, built in 1902 by Mr. Boucher for mining purposes, descends to the river, passing on the way Gertrude Point, a very scenic projecting point 1,200 feet below the rim.

(4) The proposed Santa Maria trail (of the Santa Fe) will enter from the east side and continue through the basin to the river below.

(5) Connecting Dripping Springs with the basin and proposed Santa Maria trail site is an extremely narrow path at the head of the basin, 1,000 feet below the rim and passing over a soft red sandstone slope at the very head of Hermit Canyon proper. From this trail one acquires a sense of sheer height above and sheer depth below scarcely equaled elsewhere in all the canyon. Mr. Boucher opened the path in order to pasture in the basin trail stock needed at Dripping Springs.

This trail connecting the Santa Maria trail site with Dripping Springs should be improved on account of its rare scenic values; also to make a connecting link from the east to west across Hermit Basin. The distance is  $1\frac{1}{4}$  miles, and the cost is estimated at \$500. The improvement should be made subsequent to the construction of the Santa Maria trail.

(6) The system of trails along the rim should be completed by a trail commencing near the old Cruther's cabin in section 30 and following the rim, around the head of the Dripping Springs end of Hermit Basin, to Yuma Point and on to Cocopa Point, as the extreme western terminus of the present proposed trail system. The distance is about  $6\frac{1}{2}$  miles over a generally smooth, level surface covered with juniper and pinon. The cost is estimated at \$80 per mile, or a total of \$520.

#### CONSTRUCTION MATERIALS AND SPECIFICATIONS FOR ROADS AND WALKS.

For the permanent roads and the more important footpaths some special material for the crown will be required. The surface rock throughout the region is prevailingly a firm limestone of excellent quality for road construction. Upon the approval of the pending special use for a road along the rim, the Santa Fe Land Improvement Company are prepared, according to information of the division engineer, at once to import a rock crusher and commence work.

Another material is obtained from natural volcanic cinder pits and extensively used along the Atchison, Topeka and Santa Fe Railroad as ballast for their tracks. There is sufficient clay mixed with the cinders to bind the whole into a compact mass.

It seems very probable that satisfactory arrangements can be made between the Santa Fe company and the Government, or its authorized contractor, for one or the other of these materials as may be needed for preliminary trail or road improvement. Else-

where a recommendation is contained that the Government build at once a bridle and foot path from Yavapai Point westward to Hopi Point.

The standard road for the monument should be 20 feet in width, with necessary gutters or drains additional on the sides, of which the crown should be 12 feet in width, coated with 6 to 12 inches of crushed limestone rock or native volcanic cinders, with a graded strip 4 feet wide on each side for extra turn-out. This type of road has been adopted by the Santa Fe Land Improvement Company for their proposed road in connection with the Santa Maria trail. The cost of constructing this road is estimated at \$4,000 per mile for 10 miles, and \$3,500 for 10 to 30 miles of road.

Footpaths, near central points where the travel will be heavy, should be cleared 9 feet in width, with a crown of crushed rock 5 feet wide. The proposed walk from Grand Canyon west to Sentinel and Hopi points would be an example. At farther distances from centers of tourist travel, the paths could be reduced to a 6-foot clearing with a 3-foot crown. The total cost is estimated at \$250 per mile for the former and \$200 per mile for the latter.

#### SUMMARY OF COST—ROADS AND TRAILS.

Following is a general summary of the cost of roads and trails outlined in above plan:

##### 1. Roads and trails needed at present:

(a) Scenic roadway along rim:	
Grand View to Grand Canyon.....	\$68,000
Grand Canyon westward <sup>a</sup> .....	32,000
	<hr/> \$100,000
(b) Road improvement (interior roads) needed at present:	
Dripping Springs road.....	975
Rowe well eastward.....	750
Rowe well northward.....	375
Grand View road.....	1,400
	<hr/> 3,500
(c) Trails, improvement and construction:	
Rim, Yavapai Point to Hopi Point.....	875
Rim, Yavapai Point to Grand View.....	1,600
Grand View cut-off trail (improve).....	45
Hermit Basins rim trail (east).....	160
Hermit Basins rim trail (south).....	520
Hermit Basins basin trail.....	500
Dripping Springs trail.....	300
	<hr/> 4,000
	<hr/> 107,500

The total for the construction of a scenic road along the rim, for the improvement of certain of the existing interior roads, and opening up of a rim trail and improvement of others amounts to \$107,500. Of this amount \$32,000 is assigned for reimbursing the Santa Fe Land Improvement Company for 8 miles of proposed rim roadway. Amounts of this size can be considered only as direct special appropriations.

The total amount for improving existing roads and trail work is \$7,800. This item should be considered as urgent work, to be acted upon as soon as possible.

<sup>a</sup> Either by purchase from Santa Fe Improvement Company or by construction.



2. *Roads and trails, ultimate plan.*—The total cost of construction of roads and trails included in the ultimate plan for the canyon is \$560,000. Deducting the amount of \$107,500 specified in the preceding subdivision leaves an amount of \$452,500 for the more distant future work of completely developing roads and trails in the national monument south of the canyon proper.

PROPOSED SCENIC ROADWAY OF THE SANTA FE LAND IMPROVEMENT COMPANY.

On May 7, 8, and 9 the writer in company with Mr. H. C. Phillips, chief engineer of the Atchison, Topeka and Santa Fe Railroad, and Mr. George E. Kessler, landscape architect in their employ, made a close inspection of the entire road survey following the rim from Hopi Point west to Hermit basin. The map marked "Exhibit 10" shows the proposed course of the road. As a result the survey was amended at about fifty points along the line with a view of including the maximum number of desirable viewpoints, and introducing occasional relief by short stretches of forest trees and such other forms of variety as were possible along the proposed route.

Attached is a complete list giving these departures from the official survey, which should be referred to when the question of final approval is under consideration. The results of the inspection are believed to be eminently satisfactory toward making a grand scenic highway.

The proposed roadway will open up to the public a wonderfully impressive series of panoramic views. First comes the amphitheater at the head of Salt Creek, followed by Mohave Point and the deep, far-receding amphitheater at the head of Monument Creek. A view of the rim and canyon wall here is shown in Plate 1b. From Pima Point (pl. 15) a very sightly point, which is reached next, the road swings south for a mile along the east side of Hermit Basin to the road terminus and head of the proposed Santa Maria trail. Plate 8 shows two views along here.

While the course is generally along the rim, frequent departures of 40 to 100 feet occur, and in two places in the 6 miles of distance the road leaves the vicinity of the rim in order to secure an easy grade across small, entering side canyons. These departures serve, by way of variety, notably to enhance the scenic effect. The danger in locating a rim road, especially the first of its sort, is a tendency to hold the course too close to the edge. A sufficient margin for locating rest shelters and for the safety of persons strolling along the rim is very essential. At the prominent viewpoints considerable area has been left for future developments of this sort, including shelters, seats, and paths.

*Thinning for scenic effect.*—The scenery along the rim can be very greatly enhanced by judicious cutting. It is absolutely essential that this operation be performed as a matter of individual selection with the utmost degree of care and good judgment. The scenic values can easily be ruined by mistakes in thinning the forest stand. The key to the operation is in opening up vistas through the trees which most fortunately abound along the rim of the canyon. In places sweeping panorama will be afforded. The process of cutting should be gradual, represented by the following stages:

(1) Opening the forest cover just sufficiently to allow for the right of way.



(2) Thinning the forest between the road and the rim subsequent to its completion. This should be by careful individual selection and gradually worked out.

(3) Clearing up dead trees and brush along the roadway.

Mr. Kessler, the landscape architect employed by the Santa Fe Company, has had exceptionally wide experience in this and several European countries, and the writer had opportunity during the road inspection to discuss with him at length the question of the quality and quantity of thinning.

*Special note.*—During the road inspection, which was commenced at Hopi Point and run westward, it developed more and more that the road should not be run too close to the rim; i. e., the outer margin of the road not nearer than 20 to 40 feet of the rim. In case a request is received from the Santa Fe Company to depart farther from the rim, especially over the Hopi Point end of the road, the matter should be favorably considered. To a considerable degree their interests in the location of the road and those of the Government are identical; i. e., to secure the most impressive and scenic route.

It is estimated by the Santa Fe Land Improvement Company that the construction of the road will cost about \$32,000. In the event that the company for any reason does not build the road, the Government should do so, subsequent to the road to Grand View, which should take precedence. If constructed by the company, the question of reimbursing the latter should be fully considered when it appears that funds for that purpose are available.

*Recommendation.*—It is urgently recommended that the special-use permit of June 4, 1909, be approved in favor of the Santa Fe Land Improvement Company.

*Departures from final road survey of the Santa Fe Land Improvement Company.*

Agreed upon by Mr. W. R. Mattoon, Forest Service; Mr. H. C. Phillips, chief engineer, Atchison, Topeka and Santa Fe Railroad; Mr. George E. Kessler, landscape architect, May 7, 8, 9, and 10, 1909.]

Rowes Point: Start at open glade, 200 feet south of point of junction of roads and run on left curve to 315 plus 06. Road passing through dead tree with sign.

From 315 plus 06 to 311 plus 36. Leaving 312 plus 58 about 40 feet on right and using slight left-hand curve.

Thence to 307 plus 82, leaving out 309 plus 36.

To 305 plus 95—To 304 plus 11 and then on in straight line, leaving out 302 plus 93 and touching 300 plus 28.

To 297 plus 15 by straight line, cutting hill a bit on way.

To 295 plus 10—To 292 plus 63.

Leave 296 plus 97, 30 feet to left as a point to get good view.

To 289 plus 53. Leave out two stakes, go straight to 282 plus 24, making a little cut there.

To 280 plus 55.

Leave 279 plus 54, 20 feet to the left to get nearer edge.

To about 20 feet out at 277 plus 71.

To 276 plus 59 and then after 100 feet more straight line, swing to left with light curve to opposite 274 plus 11 and 35 feet out toward rim from same.

To 271 plus 71. Cut across to 266 plus 23 with circular loop, leaving the point proper to foot development. Loop about as sketched.

Straight to 262 plus 22.

To 259 plus 66, leaving out one stake.

To 258 plus 48—To 257 plus 25—To 254 plus 24 put in slight curves.

To 252 plus 36—To 251 plus 05—To 250 plus 05—To 248 plus 05.

Possibly put in turning space—To 245 plus 84.

To 243 plus 89—To 242 plus 40 and straight beyond as close as possible to rim rock exposed at edge, then curve back to 241 plus 02. On curves widen roadway.

To 236 plus 52.

From 236 plus 52, straight to 232 plus 30.



To 231 plus 08—To 229 plus 17.

To 226 plus 57—To 223 plus 59, omitting 225 plus 54 and filling ravine over box. Use rustic cedar rail on fill.

To 220 plus 66.

To 219 plus 51—To 217 plus 33.

To 215 plus 02—To a point 50 feet right of 212 plus 69, near old stake, then sharp turn to left, passing 50 feet to right of 210 plus 70.

To 204 plus 58.

Straight from 204 plus 58 to 200 plus 40.

To 199 plus 13—To 194 plus 35, leaving 196 plus 80 408 on left, and hugging rim opposite it.

From 194 plus 35 to 20 feet right of 192 plus 98 and then parallel the line 20 feet near rim to 20 feet right of 190 plus 79, and thence to 188 plus 82.

To 187 plus 26—To 184 plus 26 straight.

Straight to 181 plus 60—To 178 plus 37.

With wide turn to left near rim go to 176 plus 95, then to point 20 feet right of 175 plus 00.

Then to 171 plus 75—To 170 plus 10.

To 166 plus 74 and make turn beyond stake on Canyon side, then to 163 plus 34. Then straight to 161 plus 39.

To 159 plus 71—To 157 plus 88.

From 157 plus 88 to 156 plus 30, thence to a point 20 feet to the right of 153 plus 23 so as to get view, then to 152 plus 21—To 144 plus 90.

(*Sunday.*) From 144 plus 90 to 143 plus 16—To 141 plus 80.

To 140 plus 43—To 139 plus 00, then curve left and head for 25 feet right of 135 plus 30 to give view point. Then curve left to 133 plus 28.

To 132 plus 40—To 130 plus 52.

Leave 129 plus 10 at point and develop down the hill to 127 plus 45 and after passing 127 plus 45, curve to right, keeping up on ridge, and passing about 40 feet left of 125 plus 54 and reach 124 plus 15, then straight to a point 25 feet left of 120 plus 25, in order to use shelf better. Then support around hill to left to reach 117 plus 65—To 116 plus 34. Then support on slope passing around head of gully, staying beyond the two big pines and at a level at least 10 feet above stake 114 plus 42 and about 50 feet or more beyond and to right of 112 plus 05 and to 110 plus 90, letting level have influence.

To 109 plus 39 and 107 plus 91 fitting the hillside, which is good rock.

To 106 plus 75—To 105 plus 65—To 104 plus 20—Straight to 100 plus 90.

From 100 plus 90 to 99 plus 25—To 98 plus 25—To 96 plus 20—Straight to 92 plus 60.

To 90 plus 89 and then make easy turn to right keeping up on hill to 89 plus 50 and reverse through it to point 40 feet right of 88 plus 45 and then about 30 feet right of 87 plus 27 where turn sharp to left and to 85 plus 60.

To 84 plus 49—To 81 plus 49—Then to 20 feet right of 74 plus 49 and on to 76 plus 74—To 74 plus 90—To 72 plus 35—To 70 plus 10—To 68 plus 26—To 65 plus 41—To 62 plus 45 using 63 plus 70 as a P. T.

From near 62 plus 45 to 60 plus 45 as a P. T. and curve to 59 plus 49—To 59 plus 00—To 58 plus 32—To 57 plus 00—To 56 plus 06—Straight to 51 plus 96 where turn sharp left to 51 plus 15—To 49 plus 74—To 48 plus 87—To 48 plus 38—To use 46 plus 20 as P. T. and go with sharp left turn keeping up on hill to about 50 feet right of 42 plus 89, and around hill, keeping up and reaching 50 feet left of 39 plus 66. Thence still keeping up 50 feet to left of 38 plus 44 to 37 plus 50, then keep up to point 30 feet left of 35 plus 00—Then keep up on hill and straight to 30 feet left of 31 plus 80. Then stay up on top and go to about 50 feet left of 29 plus 69 and along line of Ball's old survey about 50 feet to left of 28 plus 00. Keep on upper shelf about 50 feet left of old line and come in to 22 plus 00.

From 22 plus 00 to 20 plus 00—To 18 plus 00.

To 17 plus 00—To 20 feet left of 16 plus 00—To 20 feet left of 13 plus 70—To 12 plus 39—To 10 plus 81—To 8 plus 00—To 3 plus 00, then a turn around as shown in large scale sketch.

#### PROPOSED LANDING PLATFORMS AND WALKS AT HOPI, SENTINEL, AND YAVAPAI POINTS.

The construction of platform landings and walks at Hopi, Sentinel, and Yavapai points, in accordance with the special-use application of the Santa Fe Land Improvement Company, will be directly in line

with the general improvement of the rim as recommended in this report.

All three of these points are held under the mining laws as lode claims, in which Mr. Ralph H. Cameron, territorial representative, is more or less interested. The opinion prevails very generally throughout the region that ore in paying quantities does not exist in the upper strata composing the upper 1,000 to 2,000 feet of the canyon walls. These strata are conformable, nearly horizontal, and non-metamorphised sedimentary rocks. The following is a table of the rock strata obtained from Mr. H. C. Phillips, chief engineer of the coast lines of the Atchison, Topeka and Santa Fe Railway Company:

	Feet.
Upper Aubrey limestone.....	560
White sandstone.....	500
Red sandstone.....	1,450
Blue limestone.....	1,500
Cambrian quartzite.....	180
Silurian shales.....	550
Granite and schist.....	1,400
Total.....	6,140

The holdings of the Canyon Copper Company, from which ore has been shipped out of the region, are located in or beneath the blue limestone stratum from 2,500 to 3,500 feet below the rim. The old pioneers, for example, Mr. Louis Boucher and Mr. W. W. Bass, who have been prospecting and mining in the canyon for the past thirty years, express strongly the opinion that the only region where paying ore may be expected to be found is in the schist representing the lowest and oldest rock in the canyon.

The two patented mining claims along the rim have upon patent reverted at once to uses other than mining and directly in line of tourists' trade. These are the Daniel Hogan claim, 1 mile west of El Tovar Hotel, used by Mr. C. F. Hamilton as a headquarters for a tourist guide business, and the patented mill site at Grand View, upon which a large hotel for tourists is located. There are two patented homesteads of 160 acres each along the rim. The patentees are P. D. Berry and John Hance. These four patents constitute all the alienated land along the rim in this region.

The proposed landings are needed primarily in connection with the livery business, while the walks along the rim at the points are needed for the use of all visitors, particularly in wet weather, and are in harmony with the proposed rim footpaths. In case these are not built by the Santa Fe Company, an improvement estimate at \$500 each should be made to include their construction. This is particularly needed at Sentinel Point on connection with the proposed Powell monument. In the present situation of doubtful right to construct the walks and landings on alleged valid mining claims, the most advisable course is to approve the application subject to all prior valid claims. An expression of consent should be sought in a diplomatic manner from Mr. Cameron in case the Government desires to construct the works. Since the question is largely legal in its bearing, further discussion is not attempted.

*Recommendations.*—(1) That in case the landings and walks are not built in two years by the Santa Fe Land Improvement Company,



an improvement estimate be made to include three sets of walks and landings at \$500 each.

(2) That the present application of the company be favorably acted upon, subject to all existing valid claims.

#### AUTOMOBILES IN THE NATIONAL MONUMENT.

This is a live question at the present time throughout Arizona. A movement is on foot to construct a public automobile thoroughfare from the southeast corner of Arizona to the rim of the canyon.

The danger of minor and fatal accidents resulting from the use of automobiles on scenic roads along the rim is too great for serious consideration of their use here. Their exclusion from the monument is very sure to entail hardship upon those who come to the canyon in automobiles. A partial solution might be reached by permitting automobiles on the interior roads after the completion of the proposed rim roadway. The former, however, are not likely in the near future to be improved for use in wet weather, and the opening to automobiles of these roads at present would be extremely dangerous on account of their narrowness and the amount of horse traffic.

The plan should include the establishment of automobile terminals at both Grand Canyon and Grand View, a short distance, say one-eighth of a mile, back from the hotel centers, and permit passage over each of the two roads entering the monument at these points.

The question is a very important one, and needs to be gradually worked out in the future.

*Recommendations.*—The recommendations of the writer are tentative, but frame up as follows: That automobiles be allowed, under specified speed regulations, on the interior roads through the national monument, as soon as these are sufficiently widened, according to plans elsewhere described in this report, or as soon as the rim road is completed; it is understood that portions of the rim road which depart from the rim of the canyon, as from Grand Canyon to Sentinel Point, are to be excluded for automobiles.

Further, that automobiles be not allowed to approach over the spurs of interior roads nearer than designated terminal stations, to be located approximately 100 to 200 yards distant from the roadway along the rim.

#### OFFICIAL GUIDE MAP FOR THE PUBLIC.

An official guide map of the central region about the canyon readily available to tourists would be of the greatest aid in opening up the canyon to the use of the public. Such a map would be valuable from the practical as well as the publicity standpoint by showing that the Government is active in making this place accessible to all classes of people. Exhibit 9 shows such a map compiled from existing maps and containing the more important places, together with a list of distances and altitudes.

The map shows clearly the location of roads and trails, points of special interest along the rim of the canyon, camps and hotels, springs, lookout points, and a list of the distances between important places of interest, with the altitudes of the latter. A special feature in addition is the assignment of consecutive numbers at turns or forks of roads and trails and at important points, indicated



on small signboards of a uniform pattern, which would enable any one readily to locate themselves by reference to the map. The specifications for the boards are given under the discussion of signs. There is an increasing number of independent travelers, and it is rightly within the function of the Government to aid in matters of public convenience.

Framed copies of the map, accompanied by notice of sale, should be placed at the news stands in the El Tovar, Bright Angel, and Grand View hotels. The manner of distribution and cost would be on the usual basis of similar public documents, at cost plus 10 per cent. The cost per hundred of Van Dyke copies of the map is estimated by the district engineer's office at approximately \$7.85, and with the addition of 10 per cent they could be sold at about 10 cents each. The cost could probably be much reduced if the maps were printed by the government presses in Washington. It is hoped that the proposed change in boundaries will be made soon.

*Recommendation.*—It is respectfully recommended that for the present copies be made by the Van Dyke process and sold at 10 cents each. That action to have the maps printed in the Government Printery be deferred until final action has been taken upon the recommendation for an addition in the vicinity of Grand Canyon.

#### OFFICIAL INFORMATION AND WARNING SIGNS.

##### NATIONAL MONUMENT AND GAME PRESERVE.

A public signboard setting forth the facts regarding the proclamation establishing the Grand Canyon National Monument and the act of Congress creating the game preserve is very much needed. At present no information of this sort is available to the traveling public, with a consequent tendency toward a wrong impression growing up regarding the real governmental ownership and control of the canyon. The impression that the Santa Fe Railroad Company is in mastery over the canyon might easily be inferred, due to the scarcity of public signs or other information regarding governmental control.

A form of wording for this large information sign is given at the close of this topic. This is suggested for a signboard,  $3\frac{1}{2}$  by 5 feet in dimensions, with gold letters on a black smalt background. The specifications of the board and supporting posts are given on the attached plan, marked "Exhibit 5."

The question of the most suitable location is mainly one of finding the place of greatest publicity. This is unquestionably the projecting point of the rim in front of El Tovar Hotel. Although this is within the 20-acre terminal site of the railroad, which includes the rim for a few hundred feet at this point, the mere location of the notice here could hardly be misleading to any appreciable extent. The prominence before the visiting public, together with the general harmonious and dignified surroundings, make this an ideal location. Mr. Charles A. Brant, manager of the El Tovar Hotel, indicated that the consent of the railroad officials would undoubtedly approve of this location. The following seems the most desirable location:

*Location.*—At a distance of about 20 feet northwest of the flagpole, in the open space back of the projecting point along the rim walk. The sign should face the canyon, where it will be seen upon an inward



look away from the canyon. Invariably following a fixed lookout over the canyon people turn about for the sake of contrast and also resting the eyes. The exact distance of the sign back of the walk should be determined on the ground by the readability of the sign.

The following wording should be used for the sign: (The plans here presented have been approved by the district forester and the sign ordered, to be paid for out of funds available prior to July 1, 1909.)

*Forest Service, U. S. Department of Agriculture—Grand Canyon National Monument.*

By authority of Congress the President of the United States established the Grand Canyon National Monument on January 11, 1908. Its entire area of approximately 800,000 acres is included within the Coconino National Forest. The tract is reserved from all forms of entry, and is patrolled and protected at government expense for the benefit of the general public. All persons are requested to cooperate in the prevention of forest fires, especially by exercising care with camp fires.

*Grand Canyon game preserve.*

The Grand Canyon game preserve was created by act of Congress June 29, 1906. By this act hunting, trapping, killing, and annoying of game animals and birds is unlawful.

FIRE WARNING.

The road to Grand View when about  $1\frac{1}{2}$  miles from Grand Canyon passes through a series of completely burned areas, in yellow pine, juniper, and pinon. The effect is strikingly one of utter forest desolation. (See Pl. 9.) The cause is known to have been carelessness of leaving a camp fire.

The opportunity of setting forth this information before the public as an example of warning is an exceedingly good one and may be done in this case without danger of impropriety.

A suggested form is given below for the sign, which should be erected on the north side of the road toward the east end of the burn near a tangle of large dead yellow pines. The board should be 4 feet long by 2 feet wide and approximately in orange letters on black smalt background, as follows:

*Forest Service, U. S. Department of Agriculture—Fire warning.*

This very destructive forest fire was caused by carelessness in leaving a camp fire unextinguished.

All persons are requested to cooperate in the prevention of forest fires, especially by exercising care with camp fires and in discarding smoking materials.

The board should be located at a suitable distance from the road, so as to be easily read from passing wagons.

ROAD AND STATION SIGNS.

The expenditure of a relatively small amount of money in placing signs at all forks of roads and in prominent points along the rim will give large returns in the matter of convenience and general information to the public, as well as giving publicity to the present matter of federal control. All signs should bear the letters "U. S."

A limited number of signs have been placed at road junctions by private enterprise, but these give only the directions, whereas distances should be shown. Permanent bench marks of the Geological Survey occur along the roads and trails. These should be marked by a small painted sign, labeled, for example, "U. S.—Altitude, 6,990." Several thousand people annually take the drive to Grand View from Grand Canyon, among whom are many who would find the ride of 14 miles



through the forest more interesting with a knowledge of the changing altitudes.

Considerable confusion prevails in regard to the names of the prominent points along the rim. Many old-established names have been officially changed (they appear on the Geological Survey sheets) and replaced by names of Indian tribes. Examples are the changes of Rowe's point to Hopi Point, Hermit to Pima, O'Neill's to Yavapai. The change tends greatly toward harmony and good taste. General confusion exists regarding the names of these points, in which nothing else will help so much as official signboards placed on these points. They should be placed several rods from the rim and facing the Canyon. Incidentally, the altitude of the point should be shown. (See Exhibit 4.) Other special features throughout the locality should be marked by a sign, for example "Thor Hammer." A list of signs is given at the close of this topic.

#### SPECIFICATIONS FOR SIGNS.

There should be uniformity in respect to size and color scheme of signs. The smaller signs should contain the letters "U. S.;" the larger signs, "Forest Service, U. S. Department of Agriculture." All signs fall into three classes, as follows:

Class A. *Road and trail signs*.—These should be lettered in black paint on white background and contain the designation, distance, and direction. The sizes should be standard, as follows:

For one name, a board 1 by 6 by 36 inches; for two names, a board 1 by 10 by 36 inches; for three names, a board 1 by 14 by 36 inches; for four names, a board 1 by 18 by 36 inches; the small boards to contain a bevel three-fourths of an inch wide, painted black; the larger board to be boxed and have a molding painted same as the letters.

Class B. *Station signs*.—These include names of points, canyons, ranger stations, fire-equipment stations and fire towers, altitude bench marks, etc. Here the color scheme should be slightly different but uniform throughout. The most satisfactory colors are a dull black background and deep orange letters. Examples may be seen on the lawns about any of the Fred Harvey hotels. (Signs to be hung against white buildings should be lettered in white on black back.) The standard signs should be boxed and have orange-colored molding.

The size will vary somewhat, but the following two sizes should be considered as standard: Three feet long by 12 inches wide of 1-inch lumber, 18 inches long by 6 inches wide of 1-inch lumber.

The former to be used on points and at ranger stations, etc., and the latter at bench marks, etc.

A special size, 9½ inches wide by 11 inches high, should be used for the identification signboards accompanying the guide map for public use. The boards should be inscribed at the top "U. S.," in the center the numerals, and at the bottom "Official Guide Map." Orange letters on black background. A list of the exact locations of these signboards is given at the end of this subject for the guidance of forest officers in erecting them.

Class C. *Special signs*.—The large national monument and game-preserve sign proposed for the rim at Grand Canyon is an example of a sign to be lettered in gold on a black smalt background. This type should be adopted only for special signs at very public places.



ERECTION OF SIGNS.

Native juniper with the bark on should be used as posts for all except Class C signs. The material is everywhere abundant, and the effect is rustic and harmonious with the surroundings. The bark remains for years on posts cut green; after the falling of the bark, the application of a dark-green stain would be appropriate. For Class C signs, use dimension lumber coated with black smalt. Trees should seldom if ever be used as a substitute for posts.

In the setting of posts, cement will likely be necessary in most cases in order to hold the post securely in the bed rock which nearly everywhere is close to the surface. The average height for signs should be 5 to 7 feet. The posts should project 5 to 8 inches above the sign, depending upon its size, with the top beveled to a point. The guide-map identification signs should be placed uppermost on the post above the road direction signs.

LIST OF SIGNS NEEDED ON THE NATIONAL MONUMENT.

CLASS A.—Road and trail.

Sign.	Location.
Grand View—13½ miles →	Three-fourths mile east of El Tovar.
Yavapai Point—1 mile.	Do.
Grandeur Point—1 mile ←	On Grand View road.
Thor Hammer →	Do.
Thor Hammer ←	Do.
Grand View Point—¾ mile →	Do.
Grand View Point—¾ mile ←	Do.
Grand View—14 miles →	Grand Canyon.
Yapavai Point—2 miles →	
Hopi Point—2 miles →	One-fourth mile west of El Tovar.
Sentinel Point—1¾ miles →	Do.
Rowe well ranger station—3 miles ←	
Dripping Springs—10 miles ←	
Cataract Canyon—50 miles ←	
Bass Camp—2 miles ←	One-half mile east of Rowe well.
Rowe well ranger station—½ mile →	Do.
Dripping Springs—7 miles →	
Cataract Canyon—47 miles →	
Dripping Springs ←	At Rowe well.
Cataract Canyon ←	
Hopi Point—3½ miles →	Do.
Sentinel Point—4 miles →	
Dripping Springs { Road 2 miles →	} On Supai road.
Trail ¾ mile.	
Cataract Canyon—43 miles ←	Do.
Dripping Springs trail—¾ mile →	Head of trail.
Hull tank ranger station—1 mile ←	Two miles east of Grand View.
Hull tank ranger station—3 miles →	At Grand View.
Grand View (cut-off trail) ←	On Grand View road.
Grand Canyon (cut-off trail) →	Do.

The letters "U. S." to appear on all signs.

CLASS B.—Station signs.

- Fire-equipment station (4) (for tool stations).
- Fire-patrol tower (1).
- Rowe well ranger station.
- Hull tank ranger station.
- Long Jim Canyon.
- Thor Hammer.
- Hopi Point, altitude, 7,071 feet.
- Yavapai Point, altitude, 7,100 feet.
- Grandeur Point, altitude, 7,025 feet.
- Grand View Point, altitude, 7,496 feet.
- Maricopa Point, altitude, 7,030 feet.
- Sentinel Point, altitude, 7,050 feet.
- Mohavi Point, altitude, 6,900 feet.
- Pima Point, altitude, 6,750 feet.
- Yaki Point, altitude, 7,250 feet.
- Shoshone Point, altitude, 7,300 feet.

The following altitude signs, as previously discussed, will be needed. They represent official bench marks on the Grand View road, on Bright Angel trail, and on the Dripping Springs road. For form of sign see plan marked "Exhibit 4:" Altitudes 7195, 6837, 6811, 6681, 6462, 5866, 4850, 3876, 3472, 2436.

Official identification guide map signs will be needed for 53 stations. (See specifications in previous paragraph under this heading.) Also, one large fire warning sign 2 by 4 feet for the large burn east of Grand Canyon.

All signs of Class B to have the letters "U. S." at top of sign.

#### CLASS C.—*Special signs.*

A general information sign regarding the proclamation of the national monument and game preserve, as described above (Exhibit 5).

A special fire-warning sign for the big burn on the Grand View road, as discussed above. This sign should be painted according to specifications for Class B signs.

#### LIST OF LOCATIONS FOR SIGNBOARDS ACCOMPANYING OFFICIAL GUIDE MAP.

1. Zuni Point.
2. Moran Point.
3. Head of old Hance trail.
4. Hance (Buggeln) ranch.
5. Fork of Hull Tank road.
6. Hull Tank ranger station.
7. Fork of road to Hull tank.
8. Fork of road to Hance ranch.
9. Fork of road to Flagstaff.
10. Fork of road to Grand View Point.
11. Head of Grand View trail.
12. Grand View Point.
13. Fork of road to Thor Hammer.
14. Thor Hammer.
15. Point on rim.
16. Bench mark head of Long Jim Canyon.
17. East end Grand View Cut-off trail.
18. Fork of trail to Shoshone Point.
19. Monte Vista Point.
20. Shoshone Point.
21. Point east of Yaki Point.
22. Yaki Point.
23. Head of Pipe Canyon.
24. Bench mark lower end Long Jim Canyon.
25. Fork of Old Cut-off road.
26. West End Grand View Cut-off trail.
27. Fork of road to Yavapai Point.
28. Yavapai Point.
29. Grandeur Point.
30. Fork of road to rain tank.
31. Fork of road to Hopi Point.
32. Head of trail.
33. Maricopa Point.
34. Sentinel Point.
35. Hopi Point.
36. Mohave Point.
37. Head of Monument Canyon.
38. Foot of trail.
39. Fork of road to Dripping Springs and Supai.
40. Rowe Well ranger station.
41. Fork of road to Bass camp.



42. Cut-off trail to Pima Point (proposed).
43. Pima Point.
44. Head of Santa Maria trail (proposed).
45. Bench mark near old Cruther's cabin.
46. Fork of road to Dripping Springs.
47. Head of Dripping Springs trail.
48. Dripping Springs.
49. Yuma Point.
50. Cocopa Point.
51. Head of Boucher Canyon.
52. Mimbreno Point.
53. Mescalero Point (No Man's Land).

#### COST OF SIGNS.

The cost of Class A signs in lots of 10 or more is estimated, for best quality of work, at \$1, \$1.25, \$2, and \$3 each for the respective signs listed above. An estimate on Class B signs in similar lots is \$3 for the larger size and \$1 for the smaller size. The 53 guide-map signs will cost about 60 cents each. The cost of Class C quality is considerably greater per square foot. The large sign is estimated at \$40 and smaller signs at \$15 to \$20 each.

The cost of the signs recommended in this plan is estimated at \$140, plus \$30 for labor in erecting them, giving a total of \$170.

#### SHELTERS AND SEATS ALONG THE RIM.

As a supplementary permanent improvement in connection with footpaths along the rim, seats and shelters at a few of the more accessible points are needed. Elsewhere the proposed Powell memorial seat, for which Congress has appropriated the amount of \$5,000, is discussed. This will probably be placed on Sentinel Point. The greater number of people who walk along the rim go eastward toward Grandeur and Yavapai points. There is much need for seats on these points and a simple form of shelter on Yavapai Point, since the surface is rocky and the slope is gradually away from the rim, making it decidedly unadapted in character for use in sitting. Plates 2 and 3 show the character of the surface near the rim, and plate 6 the proposed location on Grandeur Point. A shelter would be appreciated by many hundreds of people during the long hot dry season and the midsummer rainy season.

The question of seats has been thoroughly tried out at El Tovar Hotel, with the decision strongly in favor of a metallic frame settee covered with wood slats and the whole securely fastened to the ground. There seems to be a strong fascination on the part of some tourists in the crash of settees falling into the chasm below.

A shelter consisting of a roof, stained green, and resting on natural juniper posts, and containing a few rows of raised plank seats would be in good harmony with the surroundings. A rectangular shape, 12 by 18 feet in dimension, with broadly overhanging hip roof and open on all sides, is suggested for Yavapai Point. A few settees in addition should be placed along the rim.

At Hopi Point there occurs an elevated plot of smooth surface, a natural platform, which possesses great possibility of development. A shelter pavilion here would be much used and appreciated throughout the year. A circular or octagonal shelter 18 feet in diameter, of similar construction as the above, is suggested. There should be

outside seats as well. A few settees placed on sightly points along the rim footpath between Yavapai and Hopi points would prove most acceptable to the public.

Following is a list of the seats and shelters most needed at the present time for the accommodation of the public, with the estimated cost:

Rustic shelter, 12 by 18, shingle roof on juniper posts, set in cement, on Yavapai Point.....	\$75. 00
Rustic shelter, octagonal, 18 feet diameter, shingle roof, rustic posts, set in cement, on Hopi Point.....	125. 00
35 settees permanently placed and located as follows:	
4 on Grandeur Point, 6 on Yavapai Point, 10 on Hopi Point, 15 along rim footpath, at \$10 each .....	350. 00
Total.....	550. 00

*Recommendation.*—These two shelters and the equipment of seats and settees are an essential part of opening up the canyon to the public, and it is respectfully recommended that the necessary provision be made for this improvement.

#### PROPOSED POWELL MONUMENT.

In May Prof. W. H. Holmes, in an unofficial capacity, visited the canyon and selected Sentinel Point as the site to be recommended for the proposed monument to Major Powell, for which an appropriation of \$5,000 has been made by Congress. The point is a narrow spur and reaches far out into the canyon. The monument, which is likely to be a massive masonry seat fittingly inscribed, will show off to better advantage here than on a larger point; the view is among the very best, and the location, about  $1\frac{1}{2}$  miles west of Grand Canyon, is within walking distance. The recommendations for a bridle and foot path along the rim connecting the two places is made elsewhere in this report. The location of Sentinel Point is shown on map, Exhibit 9.

#### ADVERTISING SIGNS WITHIN THE MONUMENT.

On the traveled roads and trails along the rim are three advertising signs in conspicuous places. These are all advertisements of Vercamp's curio store, located under special use permit on the rim at Grand Canyon. The location of these is, respectively, on a patented mining claim on the Hopi Point road  $1\frac{1}{2}$  miles northwest of Grand Canyon; on an unpatented mining claim at the head of Bright Angel trail, and on a similar unpatented mining claim on Yavapai Point. The latter is shown in plate 12a.

The whole question has been under consideration for some time. Mr. Vercamp is in business as a private individual and meets sharp competition from the Fred Harvey curio store at the adjacent Hopi House. The signs, however, are very inharmonious and inappropriate in a public park of this sort. Moreover, their use on an unpatented mining claim is strictly for other than mining purposes, and it is believed that with the present movement toward better protection and administration of the monument, the time has arrived to request their removal altogether.

*Recommendations.*—It is respectfully recommended that the necessary steps be taken to secure the removal of the three Vercamp adver-



tising signs, on the grounds that this sort of public advertising is inharmonious and decidedly objectionable in a national monument, and secondly, in the case of two of the signs that mining claims are being used for other than mining purposes.

This policy should be maintained in the case of other advertising signs which may exist on the national monument.

#### USE OF FIREARMS.

It is very important that the use of firearms be prohibited, if possible, within the national monument. Large numbers of tourists stroll about the forest and along the rim in the vicinity of Grand Canyon and Grand View. It is quite common to come across a group of men, particularly hired help at the hotels, practicing at targets set up promiscuously in openings in the timber. Incidentally, many small mammals and birds, including the squirrel, oriole, robin, vireo, and mocking bird are killed. For the safety of the lives of the thousands of tourists, the use of firearms should be prohibited. Local sentiment among keepers of hotels, notably including Mr. Charles A. Brant, manager of El Tovar Hotel, is strongly in favor of this prohibition.

*Recommendation.*—It is respectfully recommended that action be vigorously pushed toward prohibiting the use of firearms on the Grand Canyon National Monument.

#### SPECIAL USE OF JOHN G. VERCAMP.

Mr. John G. Vercamp holds a permit for one-fourth acre of ground for a store on the rim of the canyon just east of El Tovar Hotel. The place is very conspicuous and crossed by large numbers of tourists in strolling along the rim.

Immediately back of the store a large pile of empty tin cans and rubbish has accumulated, and since the distance to the rim is only 150 feet at this point the affair is very unsightly. The photograph in plate 12b shows the condition on June 1. A large heap of firewood for stove and fireplace lies scattered about on the side of the store toward El Tovar Hotel.

*Recommendations.*—(1) It is respectfully recommended that the supervisor request the permittee to remove all rubbish from his tract, and point out to him the necessity for keeping the grounds in strictly clean and orderly condition.

(2) In this connection, immediately adjacent to the line of Mr. Vercamp's special use is a small, rough-looking "hogan" or hut built of packing-case boards and tin from discarded cans. (See pl. 13.) The thing is very unsightly, and it is respectfully recommended that the supervisor take immediate action to ascertain the owners and have them remove it, or in case of failure to do so, burn it and remove any materials that remain.

#### DISTRICT RANGER HEADQUARTERS.

With the inauguration of the district ranger plan on the Grand Canyon division of the forest, a headquarters station will be needed at Grand Canyon. This is the most central point and has good communication facilities.

A suitable location occurs about one-eighth mile southeast of the railroad station on a rise of ground at the margin between an open yellow pine and juniper-pinon forest type. Plate 11a and b shows two views of the location. The surface is smooth and well drained, and the outlook is excellent northward toward the Grand View road. No water is available except by purchase from the Santa Fe Railroad, which hauls by rail all water used for a distance of about 100 miles. Under the present policy the local ranger would be obliged to stand this expense for water used for himself and animals. A small pasture could be built locally and the large pasture at Rowe well station,  $3\frac{1}{2}$  miles distant would be available. The absence of water is the most serious natural drawback.

Under existing conditions, it is doubtful whether district ranger quarters should at present be established. The quarters at Rowe well are very satisfactory and the distance is not great. There is ample supply of water of excellent quality. Under the new plan one additional man would be needed on the force, but his services are not needed until larger construction operations are commenced. There is an objection to the district ranger's location so near the center of travel, that he would be obliged to give too much time to matters of policy at the neglect of patrol and construction work. At the present location there is more opportunity for freedom of action. The location at Grand Canyon would be convenient for local forest officers and those visiting the forest on official business, and the establishment of the station should be considered as merely temporarily deferred.

*Improvements.*—The necessary improvements for a station headquarters would consist of the following: House (log construction), barn and corral, wagon shed and outbuildings, pipe line from Santa Fe main (one-eighth mile), small pasture, and yard fence. The cost of these improvements is estimated at \$2,000.

*Recommendation—Land withdrawn.*—The proposed location is just outside the present boundary of the national monument. Recommendation is elsewhere made for an addition which will include this location. It is hoped that this addition will be made without long delay. Otherwise the supervisor should be requested to submit a report for the withdrawal of 160 acres as an administration site.

#### PERMANENT IMPROVEMENTS FOR ROWE WELL RANGER STATION.

The Rowe well ranger station is the local headquarters of the Forest Service for Grand Canyon and vicinity. It is located  $3\frac{1}{2}$  miles southwest of Grand Canyon (post-office), and is on the direct road to Dripping Springs and Cataract Canyon, over which a thousand or more tourists from all parts of this country and many foreign countries pass every year. These include a large number of people whose reputation and influence is national, and a considerable number of world-wide fame. The well, which contains clear, cool water is the only one for many miles in all directions, and people commonly stop here for water and for rest. It is very essential, therefore, from both a practical and publicity standpoint that this ranger station be made as nearly a model as possible.

The group of buildings consists of a 3-room log cabin with green-stained roof, barn, carriage shed, and shop, with whitewashed sides



and green roofs, and minor outbuildings. The space around the buildings is entirely open and free alike to range cattle and horses and other sources of damage and litter. Of all needed improvements, a fenced yard with walks and a driveway are most needed and when built would very materially improve the present appearance. A plan for the improvement of the ground, including a rustic cedar fence, has been prepared and is herewith submitted on the attached Exhibits 2 and 3, which show, respectively, the yard plan and a detail of the fence construction.

The plans and specifications were worked out in detail on the ground and are given rather fully here, in order to aid the local forest officers and economize time later when construction is commenced.

#### FENCE.

A simple rustic "cedar" fence will be very appropriate and harmonious. The surface is smooth and generally level, although the soil is shallow. Since the log house is low and broad, the fence should not be higher than necessary to turn cattle and horses.

*Specifications.*—The fence is to be constructed of natural juniper (cedar) throughout, except the 2 by 4 stringers; length, 24 rods. There will be twenty 16-foot panels, and four 10-foot panels and 5 gates. (See attached Exhibit 3.)

*Posts:* The posts, except for corners or gates, will be cut 5 feet 2 inches in length, set  $1\frac{1}{2}$  feet in ground; this brings the line 3 feet 8 inches above ground; spaced 16 feet apart. Corner and small gateposts to be cut  $6\frac{1}{2}$  feet in length, bevel pointed 2 inches high, and set  $1\frac{1}{2}$  feet in ground. The posts will project about 9 inches above the general level of the pickets. The two main-walk gateposts will be cut 12 feet in length, to be set  $2\frac{1}{2}$  feet deep, and beveled to a 4-inch point at the small end.

*Stringers:* Two stringers of 2 by 4, No. 2 common; the upper one laid on top of the posts, the lower mortised between the posts at height of 9 inches above the ground.

*Pickets:* "Cedar" limbs cut 4 feet in length; single beveled across top and square at bottom; spaced 6 to 9 inches (from center to center) depending upon the size, and raised 2 inches off the ground.

*NOTE.*—The small side branches should not be cut closer than 3 inches from the limb. After the completion of the fence the stubs should be trimmed off from the middle and outside of the fence, leaving those more or less in the plane of the fence for rustic effect.

To prevent sagging of the 16-foot panels, a large size stick will be used at the middle of each panel, set firmly on a flat stone sunken in the soil, and mortised 1 to 2 inches in depth to receive the two stringers.

*Gates:* A rustic overhead gateway in front of house (a) consisting of two larger posts spaced 44 inches in clear with a crossbar mortised between posts at a height of 8 feet in the clear. The pickets adjacent to the gate on either side should increase regularly in length toward the gate to form an upward curve in the outline of the top of the fence, ending at a height of  $6\frac{1}{2}$  feet. Small curved pieces should be set across the angles beneath the crossbar for ornamental effect. A turnstile set on a post 42 inches high to be in gateway. (See Exhibit 3.) (b) Three gateways, 42 inches in clear, with turnstiles, 40



inches in height. (c) One wagon gateway, consisting of an 8-foot panel of the regular fencing, set into sockets at each end so as to be lifted and removed freely when occasion for use arises. The frame to be braced with cross diagonals, and light-weight selected pickets only to be used. Material to be ordered: Forty-four pieces, 2 by 4 by 16, No. 1 common; 8 pieces, 2 by 4 by 10, No. 1 common. (This allows 7 pieces 2 by 4 by 16 extra for selections, 8 small braces and wheels for turnstiles.)

Cost: The juniper for posts and pickets is abundant and close at hand. Due to shallow soil, more than one-half of the post holes will likely require some blasting.

Following is the estimate of the cost:

550 feet B. M. lumber, No. 1 common, at \$30.....	\$16. 50
100 pounds nails (12d. and 20d. common).....	5. 00
8 pounds dynamite; fuse and caps.....	5. 50
Team, 2 days, at \$3.50.....	7. 00
Tools (drills, hammer, shovels, etc.).....	10. 50
Labor (6ds. at \$3 and 15ds. at \$2.50).....	55. 50
	<hr/>
	100. 00

This estimate includes material and labor sufficient to complete the fence. In addition it is estimated that the ranger will furnish supervision and assistance for four days of his time, making a total cost of approximately \$116.

#### WALKS AND DRIVEWAY.

It will be an easy matter to lay out the walks and driveway. The former should be outlined 4 feet in width by rows of suitable stones which can be gathered in the vicinity, although they do not occur in abundance. To complete the walk and provide for good walking in wet weather the coating of gravel of broken stone from a nearby rock dump 3 to 5 inches in depth should be added. Two men and a team can do a thoroughly good job and complete this in two days. An allotment of \$14 will be required, consisting of \$7 for a team two days and \$7 for labor two and one half days. Two days of ranger labor will be used.

The driveway requires only the cutting of one or two small trees and some sagebrush. A small patch should be cleared in front of the yard to provide for a circular turn for teams, and a hitching post and bar for saddle animals placed north of the main-walk gate.

*General directions.*—To locate the fence line, lay off the east line 50 feet from and parallel to the front of the log house (not the veranda). Locate the front gate in line with the road approaching from the southeast. From this the line can be run, with compass and tape, by reference to the accompanying map. The number and location of posts is shown on the accompanying map. The wheel of all the turnstiles, but particularly that in the front gate, should preferably be of round juniper rather than sawed timber.

With the exception of 50-foot panels all panels are 16 feet in length.

#### *Summary of cost.*

Yard fence.....	\$116
Walks and driveway.....	14
	<hr/>

The total is \$128, exclusive of six days of ranger labor.



## CAMPING GROUND AND SPECIAL-USE RESIDENCE PERMITS.

There has been very little request for camping ground in the national monument up to the present time. The cause is chiefly the great scarcity of water, and, secondly, the high cost of food and forage. In the vicinity of Grand Canyon the only permanent water is at Rowe well,  $3\frac{1}{2}$  miles distant on an unpatented mill site; a pool of stagnant water 4 miles down the wash by the railroad is nearly permanent and fit only for stock. The railroad refuse altogether to sell water to the general public. Until some new solution of the water problem is reached, the demand for camp grounds is unlikely to increase.

The most suitable natural location for camping ground in the vicinity of Grand Canyon is to the east and south of the railroad station; also, to the east of the site recommended for district ranger headquarters. The location is less than one-fourth mile south of the rim, from which it is separated by the Grand View road and a ridge covered with pinon and juniper. The site is a low, well-drained ridge, very broad and similar to that shown in plate 11. Another location is about one-fourth mile west of the railroad terminus, near the fork of the road to Hopi Point. Near by is a surface rain tank which holds water in the midsummer rainy season, but it is hardly safe to use it for drinking purposes.

*Residence permits.*—For the sake of preserving unimpaired the natural scenery, no residence permits along the rim should under any circumstance be approved. Under certain regulations of location, residence permits should be moderately encouraged. The danger of an increase in the number of applications is small on account of the scarcity of water. The same policy of location as in camp grounds should be followed here.

*Policy.*—It should be the policy of the Forest Service to grant camping and residence privileges at a few places in the vicinity of but not on the rim. Camps should not be in sight from the hotels, or located within 200 feet of the rim. Furthermore, camps should be restricted from the region in the vicinity of hotels, at least 300 to 500 yards distant.

*Recommendation.*—That applicants for camps and cottage residences be approved for two locations as follows: West of the fork of the Hopi Point and Rowe well roads and one-fourth mile east of the railway station terminal.

## EXHIBITION FOREST PLANTATIONS.

About 2 miles east of El Tovar, on both sides of the road to Grand View, is a large recent burn, which is not restocking. This is in some respects an excellent location for establishing an exhibit plantation. Many hundreds of people from this and other countries pass the place every year on their way to Grand Canyon.

Both the open yellow pine and pinon juniper type are represented. Although the soil depth and moisture are somewhat unfavorable in character, planting is feasible and with due care the operation should be successful. Midsummer and especially late fall will probably be more successful than spring planting. Experimental areas of 6 acres each should be laid off in each the yellow pine and pinon types

and the two species should be used in the respective tracts. Square tracts instead of the strips should here be used in order to better conform to the purpose of exhibition. One acre should each be planted, spacing 5 by 5 feet, during the rainy season and fall of 1909 and continued at this season during 1910 and 1911.

In case the experiment proves successful, the plantation could to very good effect be described on appropriate road sign boards setting forth the date and species used. The place is almost ideal for exhibiting the work of the reforestation of denuded public timber lands, except for natural unfavorable conditions, and every effort should be made to establish a plantation.

*Yellow pine* (pl. 9a).—On north side road in second burned area crossing the road going from El Tovar eastward. (This is approximately three-fourths of a mile beyond the branch road leading to Yavapai Point). Fence tract 40 rods along the road by 20 rods deep, containing approximately 5 acres. The cost of the wire will be about \$16 and ranger labor about \$30.

*Pinon* (pl. 9b).—The ground just east of the northeast corner of the Santa Fe Land Improvement Company's special use pasture is most suitable for a pinon plantation. An area of 5 acres, 40 rods along the road by 20 rods deep, should be fenced, using the present pasture fence on the west boundary. The wire will cost about \$16 and the ranger labor about \$30.

*Recommendation*.—It is respectfully recommended that two experimental plots of 5 acres be fenced and planted with western yellow pine (or Jeffrey pine) and pinon, respectively. The problem of successful forest planting is particularly broad, as it bears directly on the improvement of scenic roadways.

#### RAILROADS WITHIN THE NATIONAL MONUMENT.

Recommendation is made elsewhere to include within the national monument certain areas lying south of Grand Canyon and including a small portion of the Grand Canyon Railroad (Santa Fe system). The region is in particular need of protection against fire and various forms of exploitation for private gain. No attempt will be made here to discuss in detail the two pending projects for railroads within the present boundaries of the national monument between Grand Canyon and Grand View, viz., the Canyon Copper Company and the Grand Canyon Scenic Railway Company.

It is of the utmost importance in all considerations to keep in view the fact that the national monument holds doubtless the greatest masterpiece of world sculpture, and as such it is the duty of the Federal Government to maintain and protect it against all forms of private enterprise which would in any degree interfere with the general use and benefit of the public at large.

Railroads entering the monument from the outside and taking a direct course to the rim for a terminus may be of very great benefit to the public at large. Doubtless, at some future time the canyon will be reached thus from the north. If connection by rail is made at all from point to point along the rim, it should be had wholly outside the boundaries of the monument. This could hardly entail hardship, for at best it includes only a narrow margin along the rim of the canyon. The scenery at all points along the rim is impressive,



and holds rare possibilities of development. But all development should be of such a character as to give the benefit to the greatest possible number of people. This can be accomplished only by providing public driveways, and bridle and foot paths, open freely to horse-drawn vehicles, equestrians, and pedestrians.

The topography along the rim is generally very smooth and favorable to the construction of all forms of roads and trails. Likewise, travel by whatever means may be accomplished with easy locomotion. This situation favors development for the slower and more common modes of travel. The points of interest are not separated by wide stretches of intervening country, but succeed one another at close intervals all along the rim. This bears directly upon the question of the character of the means of travel, as discussed in the foregoing paragraphs.

*Recommendations.*—It is respectfully recommended that, on account of the character of the topography and rare opportunities for scenic development favorable to pedestrians, equestrians, and horse-drawn conveyances, any and all development along the rim be made along those specific lines for the benefit of the public at large rather than in the interest of any individual or commercial enterprise.

Further, that in case of railroads wishing to reach the rim of the canyon the question be considered in the most thoroughgoing manner, and so far as possible in the light of the restrictions that would obtain if this were made a national monument.

W. R. MATTOON,  
*Forest Examiner.*

Approved July 6, 1909.

A. B. RECKNAGEL,  
*Acting Chief of Silviculture.*

Approved, July 6, 1909.

ARTHUR C. RINGLAND,  
*District Forester.*

## EXHIBIT B.

### PROBABLE COST OF RAILROAD.

CITY OF WASHINGTON, *District of Columbia*, ss:

Personally appeared before me A. W. Oppmann, who being first duly sworn, on oath deposes and says: That he is the president of the Grand Canyon Scenic Railway; that prior to the survey of the road the estimated cost of construction was \$502,000, being \$150,000 for the tunnel line, \$291,000 for the rim road, and \$61,000 for the Indian Garden line.

But since survey has been executed and the difficulties in the way of construction have been better realized, the chief engineer estimates the probable cost of the road to be as follows: Rim road, including excavations, roadbed, rails, etc., \$416,000; the equipment of rim road, motors, trails, etc., \$112,000; tunnel road, including excavations, cars, rails, and fills, \$245,000; Indian Garden road, including excavations, motors, rails, etc., \$89,000; total, \$862,000.

That the company has sufficient finances to build this road and also to take care of any additional expenditures that may run beyond the present estimate. The few men interested are men of ability, financial standing, and wealth. As to these facts affiant can refer to any bank or trust company in either Cleveland, Ohio, or Kansas City, Mo.

Further affiant saith not.

A. W. OPPMANN.

Subscribed and sworn to before me this 10th day of June, 1910.

[SEAL.]

L. M. HOPKINS,  
*Notary Public.*

City of Washington, District of Columbia, ss:

EXPENSES TO DATE.

Personally appeared before me A. W. Oppmann, who being duly sworn, on oath deposes and says: That he is the president of the Grand Canyon Scenic Railway Company and as such is fully acquainted with all of the expenditures made by said company; that for the survey made during the summer and fall of 1907, including field-work, office work, equipment, supplies, freight charges, etc., there was a total expenditure of \$5,200. Affiant can not itemize this at the present time because he has not all of the vouchers and books here but he does file a part of the vouchers showing many of the expenditures and also some vouchers showing expenditures of more than \$100 in June and July, 1906.

Affiant further states that additional expenditures made by said company doing the necessary work of said company are as follows: During the year 1906, trip to Washington, April 30, \$50; trip to Washington, October 1, \$100; trip of president and Cleveland attorney in November to Grand Canyon, \$471; during the year 1907 expenses of incorporation, \$92.50; trip to Grand Canyon, \$260; incidental expenses, including telephone, telegraph messages, berths, hotel expenses, etc., \$204.25; total during 1906 and 1907, \$1,187.45.

That during 1908 the following sums were expended: Trip to Washington, January 4, \$80; trip to Phoenix, Ariz., to present maps, February 7, \$167; fee to Washington attorney, March 7, \$100; trip to Phoenix March 9 of president and secretary, \$800; fee to Phoenix attorney, March 9, \$100; trip of president and secretary to Washington, March 7, \$155; Western Union Company, March 10, \$12.08; trip to Washington, April, including tickets, berth, hotel, etc. \$183.86; April 18, amount paid Vernon L. Clark for expenses in Arizona. \$50.

During 1909, trip to Phoenix, Ariz., made in February, \$150; April 13, amount paid attorney in Cleveland, \$100; June 28, trip to Washington, D. C., \$140.

That in addition to the above expenses, affiant and other officers of the company have expended money for necessary expenses in Washington, D. C., attending hearings before the Interior Department, Forestry Service, and the Secretary of Agriculture, amounting in all to some \$1,200. That the total expenditures in addition to the expense of survey, namely, \$5,200, have been \$4,528.11.

That as to a large portion of these expenses affiant has a memorandum. He is positive that the above amounts have been expended; that they have all been legitimate expenses in necessary work performed on behalf of said company.

Further affiant sayeth not.

A. W. OPPMANN.

Subscribed to and sworn before me this 10th day of June, 1910.

[SEAL.]

L. M. HOPKINS, Notary Public.

Statement of account of Ira G. Hedrick (Grand Canyon Scenic Railway Company) with Joseph J. Heim, Kansas City, Mo.

Date.	Items.	Debit.	Credit.
May 13-18.....	F. H. Pratt, salary .....		\$11. 10
Do.....	Salary and expenses of E. E. Howard.....		35. 84
June 7-13.....	Photographs.....		7. 00
May 13-18.....	Expenses I. G. Hedrick, hotel, etc., at Grand Canyon.....		21. 00
May 16-18.....	Sleeper, Williams to Kansas City for three.....		27. 00
Do.....	Meals en route for three.....		16. 75
May 13-15.....	do.....		4. 50
May 16.....	By cash from J. J. Heim.....	\$30. 00	
	Balance due.....	93. 19	
		123. 19	123. 19

Received payment.

KANSAS CITY, Mo., June 7, 1906.

Waddell & Hedrick (Grand Canyon photos), bought of Photographic and View Company, Brandenburg & Lyle, 610 Main street, 606A New Ridge Building.

To 18/18 enlargement map..... \$4. 00



KANSAS CITY, MO., June 13, 1906.

Waddell & Hedrick (Grand Canyon photos), bought of Photographic and View Company,  
Brandenburgh & Lyle, 610 Main street.

To 18 x 18 map..... \$3. 00

Statement of account of R.P. Parker (scenic railway location, Grand Canyon, Arizona),  
with Ira G. Hedrick, Kansas City, Mo.

		Credit.
Sept.	7. 13 pounds beef, at 12½ cents.....	\$1. 65
	11. 5 gallons kerosene oil.....	1. 85
	14. 1 package oatmeal.....	. 40
	3 packages matches.....	. 25
	2 pounds coffee.....	. 50
	15. 15 pounds sugar.....	1. 05
	11½ pounds bacon.....	2. 50
	5 pounds corn meal.....	. 30
	16. 20 pounds potatoes.....	. 80
	12 cans evaporated cream.....	1. 50
	2 bars laundry soap.....	. 10
	20. 20 pounds potatoes.....	. 80
	50 pounds flour.....	2. 50
	6 cans milk.....	. 75
	2 cakes laundry soap.....	. 10
	5 pounds sugar.....	. 40
	14 pounds bacon.....	3. 10
	5 pounds butter.....	1. 75
	12 pounds beef.....	1. 50
	26. 5 pounds potatoes.....	. 20
	2 pounds sugar.....	. 15
	1 pound coffee.....	. 25
	1 package oatmeal.....	. 20
	2 pounds sugar.....	. 15
	2 cans milk.....	. 25
	8 pounds bacon.....	1. 75
	3 bottles catsup.....	. 50
	5 pounds raisins.....	. 75
	27. 5 pounds corn meal.....	. 30
	4 pounds coffee.....	1. 00
	50 pounds Irish potatoes.....	2. 00
	29. 50 pounds Irish potatoes.....	2. 00
Oct.	5. 6 cans milk.....	. 75
	3 pounds coffee.....	. 75
	20 pounds brown beans.....	1. 10
	120 pounds potatoes.....	4. 80
	3 packages matches.....	. 25
	5 pounds oatmeal.....	. 40
	2 pounds coffee.....	. 50
		<hr/>
		a 39. 85
		<hr/>
1907.		
Aug.	1. Groceries.....	105. 30
	Hardware.....	33. 45
Sept.	— Groceries.....	92. 64
	Fresh meat.....	22. 60
	Hardware.....	23. 72
	Groceries.....	48. 62
	Fresh meat.....	27. 10
	Hardware.....	2. 44
		<hr/>
		b 355. 87
		<hr/>

a Bought of Holmes Supply Company, Grand Canyon, Ariz.  
b Bought of Babbitt Brothers' Company, Williams, Ariz.

		Credit.
Aug.	1. Express charges on fresh meat from Williams.....	\$0. 35
	Freight on 1 cook stove from Williams.....	. 41
	2. Freight charges on groceries from Williams.....	4. 61
	3. Express charges on drafting table from Williams to Grand Canyon	2. 00
	Freight on lumber for dining table from Williams to Grand Canyon.....	. 75
	5. Express charges on fresh meat and groceries, Williams to Grand Canyon.....	1. 00
	8. Express charges on cooking utensils, hardware, wire cot, sack potatoes, 2 pairs shoes.....	2. 60
	9. 1 package from Williams, express charges.....	. 45
	10. Freight charges on 1 sack potatoes, 1 sack hams, from Williams.	. 48
	12. Freight charges on box of groceries, 1 sack tinware, 2 sacks of barley.....	. 70
	Express charges on 1 10-pound package from Williams.....	. 45
	20. Freight on 2 sacks flour, 5 boxes canned goods, 1 sack bacon, 1 box groceries.....	1. 50
	27. Freight charges on 1 box crackers, 1 box groceries, 1 sack groceries, 1 box evaporated apples, 100 pounds sugar (4 sacks), 200 pounds flour, from Williams.....	1. 70
	27. Express charges on 1 sack of fresh meat from Williams, Ariz., to Grand Canyon.....	. 35
Sept.	4. Express charges on 1 box groceries from Williams to Grand Canyon.....	1. 85
	Express charges on 1 sack meat and half case eggs from Williams to Grand Canyon.....	. 70
	11. Express charges on fresh meat from Williams, Ariz., to Grand Canyon.....	. 40
	Express charges on 1 box groceries, 1 box prunes, 1 case peaches from Williams to Grand Canyon, Ariz.....	. 53
July	29. Excess baggage on 500 pounds tents and fixtures from Kansas City to Grand Canyon, Ariz.....	31. 25
Aug.	1. Lumber for dining table.....	2. 75
	1 drafting table.....	6. 00
	Purchase of 1 second-hand cook stove.....	6. 00
	23. 1½ days' board for Lever party at Grand View Hotel.....	7. 50
	Stage fare for waterman from Anvil Rock to Grand View and return.....	3. 00
	10. Stage fare to El Tovar Hotel.....	1. 50
	21. Stage fare for 2 from Thor Hammers to Grand Canyon.....	3. 00
	15. Freight box groceries from Grand Canyon to camp near Long Jim Canyon.....	. 25
	19. Freight 2 sacks barley from Grand Canyon to camp near Long Jim Canyon.....	. 80
	23. Purchase of 105 gallons of water from Grand View Hotel.....	5. 00
	31. Hire of one 2-horse team from El Tovar Hotel for moving camp 10 miles east from Grand Canyon.....	16. 00
	Purchase of lumber from J. M. Miller for camp purposes.....	2. 00
	Water purchased of the Santa Fe Railway Co. during August, 1907.....	2. 00
Sept.	8. Pullman fare for Howard Paret, topographer, from Williams to Kansas City, Mo.....	4. 50
	11. One brass plumbob bought of the Engineers and Architects' Supply Co. for use of rear chainman.....	. 65
Oct.	2. One day's board for 2 taking topography near Grand View Hotel.	6. 00
Sept.	28. Hire saddle horse and use of trail for one day.....	3. 50
Oct.	9. Refund of fare paid by Andrew Shumway, axman, from Williams to Grand Canyon, Ariz.....	3. 50
	Amount paid to Sanford Rowe for furnishing and hauling water during September and October, 1907.....	65. 00
	Refund of fare paid by R. W. Pierce from Prescott to Williams.	6. 75
	Return fare to Williams for Pedro Yanes, stake man.....	3. 50
	Return fare to Williams for George Cornell, rear chainman.....	3. 50
		<hr/> 183. 95 <hr/>
	11. Sleeping-car fare Williams to Kansas City.....	9. 00



## ITEMS FOR WHICH RECEIPTS WERE NOT OBTAINABLE.

		Credit.
July	29. 4 round-trip tickets, Kansas City to Williams.....	\$220. 00
	Sleeping-car fare for 4, Kansas City to Williams.....	18. 00
	Dinner for 2, Kansas City.....	. 70
	Supper for 4 at Newton.....	3. 00
	30. Breakfast for 4 at Lamar.....	1. 20
	Dinner for 4 at La Junta.....	. 90
	Supper for 4 at Las Vegas.....	3. 00
	31. Breakfast for 4 on train.....	. 60
	Dinner for 4 at Gallup.....	3. 00
	Supper for 4 at Williams.....	1. 40
	Lodging for 4 at Williams.....	2. 00
Aug.	1. Breakfast for 4 at Williams.....	1. 00
	Dinner for 4 at Williams.....	1. 25
	Supper for 4 at Williams.....	1. 05
	Lodging for 4 at Williams.....	2. 50
	One teakettle at Williams.....	1. 50
	2. Breakfast for 4 at Williams.....	1. 00
	Tickets for 6 men, Williams to Grand Canyon.....	22. 80
	Dinner for 10 men, Bright Angel.....	4. 65
	Express on level rods, transit rods, and tripods.....	8. 58
	3. Dinner and horse feed, Grand View.....	1. 25
	Saddle horse, El Tovar.....	4. 00
	4. Telegram to Williams.....	. 55
	9. Fare to Williams, and return, to get men.....	6. 50
	Fare for 5 men, Williams to Grand Canyon.....	19. 00
	9. Dinner for two men, Williams.....	. 75
	Medicine for camp.....	. 50
	Fare for man to Grand View to get water kegs.....	1. 50
	14. Fare for myself from camp to El Tovar (summoned by Santa Fe detective to move camp).....	1. 50
	Supper and lodging, Bright Angel.....	1. 40
	16. Two water kegs brought from Captain Hanes.....	5. 00
Sept.	1. Dinner at El Tovar.....	1. 00
	2. Ticket to Williams and return, to get cook.....	6. 50
	Dinner, supper, and lodging at Williams.....	2. 00
	Twine and sail needles to make stake bag.....	. 25
	3. Ticket for cook to Grand Canyon.....	3. 80
August 28 to September 1.	Bread bought at the El Tovar.....	1. 10
Sept.	3. Breakfast at Williams.....	. 35
	4. Moving camp, dinner and supper for two (2).....	2. 00
	Moving camp, breakfast for 2.....	1. 00
	Paid stage driver for carrying packages to and from camp.....	2. 00
	Lunch for man waiting for balance of outfit while moving camp..	. 25
	22. Telegram to Kansas City.....	. 60
	Telegram to axeman at Williams.....	. 25
	26. Express on provisions from Williams.....	. 40
Oct.	9. Supper and lodging, Bright Angel.....	1. 50
	10. Breakfast and supper, Bright Angel.....	1. 35
	9. Telegram to Kansas City.....	. 60
	10. Lodging, Williams, Ariz.....	. 50
	11. Breakfast, dinner, supper and lodging, Williams.....	1. 60
	12. Breakfast, Williams, Ariz.....	. 25
	Dinner on diner.....	. 75
	Supper on diner.....	. 75
	13. Breakfast, dinner and supper on diner.....	2. 25
	Lodging, Kansas City.....	1. 00
	14. Breakfast, dinner, supper, and lodging, Kansas City.....	1. 25
	15. Breakfast, dinner supper, and lodging, Kansas City.....	1. 25
	16. Breakfast, dinner, supper, and lodging, Kansas City.....	1. 25
	17. Breakfast, dinner, supper, and lodging, Kansas City.....	1. 25
	18. Breakfast, dinner, supper, and lodging, Kansas City.....	1. 25
Total.....		378. 38

*Pay roll Grand Canon Scenic Railway Construction Company, engineering department,  
for services rendered as described below.*

## MONTH OF AUGUST, 1907.

Name.	Occupation.	Time.		Rate.	Amount.	De- duc- tions.	Amount payable.
		Mos.	Days.				
R. P. Parker.....	Locating engineer.....	1	.....	\$150.00	\$150.00	.....	\$150.00
Aily Hedrick.....	Transitman.....	1	.....	90.00	90.00	.....	90.00
Howard Paret.....	Topographer.....	1	.....	75.00	75.00	.....	75.00
Fred Strockbien.....	Level rod.....	1	.....	55.00	55.00	.....	55.00
T. H. Harron.....	Head chain.....	1	.....	55.00	55.00	.....	55.00
Tom Jones.....	Axman.....	.....	3	1.60	4.80	<i>a</i> \$3.80	1.00
Geo. Cornell.....	Back flag.....	$\frac{30}{31}$	.....	35.00	33.87	.....	33.87
Harry Ferry.....	Burro driver.....	$\frac{49}{52}$	.....	30.00	23.71	.....	23.71
Sam Williams.....	Cook.....	1	.....	50.00	50.00	.....	50.00
Joe Black.....	Axman.....	.....	3.2	1.50	4.80	<i>a</i> 3.80	1.00
T. J. Malearn.....	do.....	.....	8	1.25	10.00	.....	10.00
Leo Phillips.....	do.....	.....	26	1.00	26.00	.....	26.00
Andrew Shumway.....	do.....	$\frac{7}{31}$	.....	30.00	6.75	.....	6.75
Bill Sutherland.....	do.....	.....	14	2.00	28.00	.....	28.00
Alec. Smith.....	do.....	.....	1	1.50	1.50	<i>b</i> 1.50	.....
Fred Butterly.....	do.....	.....	1.9	2.00	3.80	<i>a</i> 3.80	.....
Pedro Ganes.....	Stakeman.....	.....	23	1.00	23.00	.....	23.00
Robt. W. Pierce.....	Head chain.....	$\frac{6}{31}$	.....	55.00	10.64	.....	10.64
Total.....	.....	.....	.....	.....	.....	.....	638.97

*a* Fare Williams to Grand Canon.

*b* One comforter.

## MONTH OF SEPTEMBER, 1907.

R. P. Parker.....	Locating engineer.....	1	.....	\$150.00	\$150.00	.....	\$150.00
Howard Paret.....	Topographer.....	$\frac{10}{30}$	.....	75.00	25.00	.....	25.00
Robt. W. Pierce.....	Head chainman.....	1	.....	55.00	55.00	.....	55.00
Fred Strackbein.....	Levelman.....	1	.....	75.00	75.00	.....	75.00
T. H. Harron.....	Level, rod, and assistant with transit.....	1	.....	65.00	65.00	.....	65.00
Geo. Cornell.....	Rear chain.....	1	.....	40.00	40.00	.....	40.00
Bill Sutherland.....	Axman.....	.....	18	2.00	36.00	.....	36.00
Pedro Ganes.....	Stakeman.....	.....	1	35.00	35.00	.....	35.00
Lee Woo.....	Cook.....	$\frac{55}{56}$	.....	75.00	68.71	.....	68.71
J. F. Dunphy.....	Axman.....	.....	9	1.50	13.50	.....	13.50
Andrew Shumway.....	do.....	.....	6	2.00	12.00	.....	12.00
Total.....	.....	.....	.....	.....	.....	.....	575.21

## MONTH OF OCTOBER, 1907.

R. P. Parker.....	Locating engineer.....	$\frac{18}{31}$	.....	\$150.00	\$87.10	.....	\$87.10
Fred Strackbein.....	Levelman.....	$\frac{12}{31}$	.....	75.00	29.03	.....	29.03
T. H. Harron.....	Level, rod, and assistant with transit.....	$\frac{12}{31}$	.....	65.00	25.16	.....	25.16
Robt. W. Pierce.....	Head chain.....	$\frac{9}{31}$	.....	55.00	15.96	.....	15.96
Geo. Cornell.....	Rear chain.....	$\frac{8}{31}$	.....	40.00	.....	.....	10.32
Woo Lee.....	Cook.....	$\frac{8}{31}$	.....	75.00	19.35	.....	19.35
Andrew Shumway.....	Axman.....	.....	7	2.00	14.00	.....	14.00
Pedro Ganes.....	Stakeman.....	$\frac{8}{31}$	.....	35.00	9.03	.....	9.03
Total.....	.....	.....	.....	.....	.....	.....	209.95

Correct:

R. P. PARKER,  
*Locating Engineer.*

## SUMMARY.

	Debit.	Credit.
Groceries bought of Holmes Supply Company.....		\$39. 85
Cash received July 29, 1907.....	\$550. 00	
Groceries, etc., bought of Babbitt Brothers Company.....		355. 87
Account instrument retained by Parker (personal).....	8. 20	
Express and freight charges on groceries, etc., from Williams to Grand Canyon, Ariz.....		20. 83



	Debits.	Credit.
Miscellaneous items, sheets Nos. 5, 6, and 7.....		\$183. 95
Sleeping car from Williams to Kansas City.....		9. 00
Advanced by J. G. H. to Arly Hedrick, account salary .....	\$59. 05	
Items for which receipts were not obtainable, sheets Nos. 8, 9, and 10 .....		378. 38
Cash received, September 8, 1907.....	700. 00	
Pay roll for August, 1907, sheet No. 11.....		638. 97
A. L. Hedrick, expenses home.....		21. 10
Pay roll for September, 1907, sheet No. 12.....		575. 21
September 8, to sale of groceries left over.....	11. 60	
Pay roll for October, 1907, sheet No. 13.....		209. 95
	1, 328. 85	2, 433. 11
Balance.....	1, 104. 26	
Received payment in full October 26, 1907.		

R. P. PARKER.

*Statement of account of Arley L. Hedrick, on Grand Canyon survey, with Waddell & Hedrick, Kansas City, Mo.*

Date.	Items.	Debit.	Credit.
August 1-3.....		\$90. 00	
August 31.....	El Tovar.....	4. 00	
September 1.....	Sleeper from Grand Canyon to Kansas City.....	10. 50	
	6 meals.....	6. 60	
	Cash received.....		\$52. 05
		111. 10	59. 05
		52. 05	
		59. 05	111. 10

Received payment.

ARLY L. HEDRICK.

[Consignee's receipt.]

910 MAIN STREET, KANSAS CITY, MO., *October 14, 1907.**Ira Hedrick to Wells Fargo & Co. Express, Dr.*

Our charges on 1 box from Grand Canyon, weight 60 pounds.....	\$6. 00
Our charges on 2 bales from Grand Canyon, weight 45 pounds.....	4. 75
	10. 75

Received payment.

S. J. PETERSON,  
General Agent.

[Consignee's receipt.]

OCTOBER 8, 1907.

*Ira G. Hedrick to Wells Fargo & Co. Express, Dr.*

Our charges on 1 package from Grand Canyon, Ariz., weight 2 pounds.....	\$0. 35
	. 35

Received payment.

H. E. BAILEY, Agent.

Chg. Grand Canyon. Cr. off Ex. (field) 10-5-07.

KANSAS CITY, MO., *October 3, 1907.*

*Ira G. Hedrick, 309 Keith and Perry Building, to Wells Fargo & Company Express, Dr.*

For charges prepaid on the following shipments.

1 pk. cy. 700.00; consignee, R. P. Parker; destination, Grand Canyon, Ariz.; charges, \$1.50.

KANSAS CITY, MO., September 16, 1907.

Expenses of Ira G. Hedrick out of cash account Grand Canyon surveys.

Aug. 1, 1907. Railroad fare I. G. H., K. C. to Grand Canyon and return.....	\$55. 00
Railroad fare Atty. L. Hedina, K. C. to Grand Canyon and return.....	55. 00
Pullman fare I. G. H., K. C. to Grand Canyon and return.....	21. 00
Pullman fare A. L. H., K. C. to Grand Canyon and return.....	21. 00
Aug. 3 to 6, inclusive. Hotel Grand Canyon, I. G. H., Grand Canyon and return.....	20. 00
Hotel Grand Canyon, A. L. H.....	8. 00
Aug. 1 to 9. Meals en route Grand Canyon and return, I. G. H. and A. L. H. to G. C. only.....	18. 00
Incidentals.....	10. 00
	208. 00
Paid architects and Eng. Sup.....	120. 80
Charge to account Grand Canyon Scenic Railway Company.	
Received payment September 16, 1907.	

IRA G. HEDRICK.

SANTA FE.  
KANSAS CITY, MO., February 2, 1908.

I. G. HEDRICK.

DEAR SIR: I am in a position to refund you \$2 if you will send me paid freight bill 4785, dated November 5, covering shipment of 5 bundles tents, 2 boxes cooking utensils, and 4 bundles tent poles from Williams, Ariz., on which you paid me \$20.40 charges, November 12.

Yours, truly,

D. S. FARLEY, Agent,  
per B.

IRA G. HEDRICK, CONSULTING ENGINEER,  
KANSAS CITY, MO., February 4, 1908.

D. S. FARLEY, Esq.,  
Agent Santa Fe, Kansas City, Mo.

DEAR SIR: In accordance with your request of the 2d inst., I am inclosing herewith freight bill No. 4785, dated November 5, 1907, covering 5 bundles tents, 2 boxes cooking utensils, and 4 bundles tent poles shipped from Williams, Ariz., and on which I paid \$20.40 November 20, 1907.

Thanking you in advance for the \$2 refund which you state is coming to me, and hoping you will send same shortly, I am,

Yours, very truly,

IRA G. HEDRICK.

[Freight bill.]

Ira G. Hendrick to the Atchison, Topeka & Santa Fe Railway Co., Dr.

Waybill: Date, October 19; number and series, F 39. Car, initials, AT; number, 26774. From Williams, Ariz. Original point shipment and consignor, Grd. Canton WB F 47 10, 10.

For freight and charges on—	Weight.	Rate.	Freight.	Ad- vances.	Total.
5 bundles tent.....	400	\$3. 42	\$13. 68	\$1. 84	.....
2 boxes cooking utensils.....	100	2. 00	2. 00	.....	.....
4 bundles tent poles.....	100	2. 50	2. 50	. 38	.....
	500	.....	18. 18	2. 22	\$20. 40

Refunded \$2.00. D. S. Farley, Agt. B. 2-14-08.  
Received payment, November 12, 1907, Kansas City station.

D. S. FARLEY, Agent.



GRAND CANON, ARIZ., *October 9, 1907.*

Received from R. P. Parker eighty-five and  $\frac{31}{100}$  dollars, in full for services rendered as hind chain and back flag during August, September, and October, 1907.  
\$85.31.

GEO. CORNELL:

GRAND CANON, ARIZ., *October 9, 1907.*

Received from R. P. Parker twenty-six dollars, in full for services as axman during September and October.  
\$26.

ANDREW SHUMWAY.

GRAND CANON, ARIZ., *October 9, 1907.*

Received from R. P. Parker eighty-one and  $\frac{60}{100}$  dollars, in full for services rendered as head chain man during August, September, and October, 1907.  
\$81.60.

ROBERT W. PENEL.

GRAND CANON, ARIZ., *October 9, 1907.*

Received from R. P. Parker, sixty-seven and  $\frac{03}{100}$  dollars, in full for services as stake man during August, September, and October, 1907.  
\$67.03.

PEDRO YANEZ.

GRAND CANON, ARIZ., *October 8, 1907.*

Received from R. P. Parker eighty-eight and  $\frac{10}{100}$  dollars, in full for services as cook during September and October, 1907.  
\$88.10.

WOO LEE.

Witness:

T. H. Harrod.

GRAND CANYON, ARIZ., *August 7, 1907.*

Received of R. P. Parker six and  $\frac{00}{100}$  dollars, in full for services as axman during August, 1907.  
\$6.00.

LEO PHILLIPS.

GRAND CANYON, ARIZ., *August 8, 1907.*

Received of R. P. Parker ten and  $\frac{00}{100}$  dollars in full payment for services as chainman during August, 1907.  
\$10.00.

T. J. MALCOM.

GRAND CANYON, ARIZ., *August 9, 1907.*

Received of R. P. Parker six and  $\frac{75}{100}$  dollars in full payment for services as axman during August, 1907.  
\$6.75.

ANDREW SCHUMWAY.

GRAND CANYON, ARIZ., *August 26, 1907.*

Received of R. P. Parker twenty-three and  $\frac{71}{100}$  dollars in full payment for services as axman and burro driver during August, 1907.  
\$23.71.

H. E. FERRY.

GRAND CANYON, ARIZ., *August 30, 1907.*

Received of R. P. Parker twenty and  $\frac{00}{100}$  dollars in full payment for services as chainman from August 15 to August 30, 1907, inclusive.  
\$20.00.

LEO PHILLIPS.

GRAND CANYON, ARIZ., *August 31, 1907.*

Received of R. P. Parker fifty-two and  $\frac{05}{100}$  dollars cash, etc., in part payment for services rendered as transitman during month of August, 1907.  
\$52.05.

ARLY L. HEDRICK.

IRA G. HEDRICK,

CONSULTING ENGINEER,

GRAND CANYON, ARIZ., *September 3, 1907.*

Received of R. P. Parker fifty dollars (\$50) in full for services as cook from August 3 to September 3, 1907.

SAM WILLIAMS.

[Copy correspondence Waddell &amp; Hedrick.]

GRAND CANYON, ARIZ., *September 12, 1907.*

Received of R. P. Parker \$13.50 in full, for services as axeman from September 2 to September 11, 1907.

J. F. DUNPHY.

4003. Receipt for U. S. postal money order, to be given by issuing postmaster to the purchaser, who will retain same and present it at office (\$20.60) of issue if necessary to make inquiry regarding the order. Dated stamp of issuing office, Grand Canyon, Ariz., October 10, 1907. M. O. B.

GRAND CANYON, ARIZ., *September 25, 1907.*

Received of R. P. Parker the sum of forty-three dollars and forty cents (\$43.40), in part payment for services rendered as axeman from August 17 to September 21, 1907, at \$2 per day.

OSCAR W. SUTHERLAND.

Attached to receipt:

Note paid bal. (\$20.60), by money order attached.

Received of R. P. Parker ninety-three dollars and sixty-five cents (\$93.65) in part payment for services rendered as level rodman and levelman during August, September, and October, 1907.

F. J. STRACKBEIN.

HOTEL SAVOY,  
*Kansas City, Mo., October 19, 1907.*

Received of R. P. Parker ninety dollars (\$90.00) in full for services rendered as head chainman and assistant with transit during the months of September and October, 1907.

THOS. H. HARROD.

GRAND CANYON, ARIZ., *September 10, 1907.*

Received of R. P. Parker fifty-five dollars (\$55.00) in full for services rendered as head chainman during the month of August, 1907.

THOS. H. HARROD.

*Statement of account of Ira G. Hedrick, on Grand Canyon survey, with Waddell & Hedrick, Kansas City, Mo.*

Aug. 1-31.....	\$90.00
Aug. 31. El Tovar.....	4.00
Sept. 1. Sleeper from Grand Canyon to Kansas City.....	10.50
6 meals.....	6.60

111.10

Cash received.....	52.05
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Balance due.....	59.05
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Received payment.

IRA G. HEDRICK.

HOTEL SAVOY,  
*Kansas City, Mo., October 26, 1907.*

Received of R. P. Parker sixty-five dollars and thirty-eight cents (\$65.38), in full to date for services rendered during September and October, 1907.

F. J. STRACKHEIN.

WM. H. PARET, REAL ESTATE AND LOANS,  
*Kansas City, Mo., October 26, 1907.*

Received from R. P. Parker one hundred dollars for services as topographer on Grand Canyon Scenic Railway during August and September, 1907.

HOWARD PARET.  
By W. H. P.



[Union Depot Company, Kansas City, Mo.—Baggage department.]

Received of R. P. Parkèr the sum of thirty-one and 25/100 dollars (\$31.25) for 500 pounds excess from Kansas City, Mo., to Grand Canyon, Ariz., via A. T. S. F., L. V. & S. A., G. C. Ry. Form Ex. B. C. Check numbers 89952 (18 pcs.).

F. A. UPDEGRAFF,  
General Baggage Agent.  
Per W. H. D.

JULY 29, 1907.

AUGUST 1, 1907.

Received of R. P. Parker two and 75/100 dollars, lumber.  
\$2.75.

S. & M. L. Co.  
R. E.

WILLIAMS, ARIZ., August 1, 1907.

Received from R. P. Parker, C. E., six dol ars for drafting table.  
\$6.00

J. S. BUTTERE.

WILLIAMS, ARIZ., August 1, 1907.

Received of R. P. Parker the sum of (\$6.00) six dollars for one secondhand cook stove.

ANDREW SHUMWAY.

GRANDVIEW, ARIZ., August 23, 1907.

Mr. R. B. Parker to Grandview Hotel (Canyon Copper Company), Dr.

Board, 1½ days, at \$3 per day, \$3.75 (2).....	\$7. 50
Stage, \$1.50 (2).....	3. 00
Aug. 10. Stage fare.....	1. 50
Aug. 21. 2 stage fares.....	3. 00
Aug. 15. Freightng box.....	. 25
Aug. 19. Freightng 2 sacks barley.....	. 80
105 gallons water.....	5. 00
	<hr/>
	21. 05

Received payment, August 26, 1907.

GRANDVIEW HOTEL.  
L.

GRAND CANYON, ARIZ., August 31, 1907.

Mr. Parker, to El Tovar Hotel, debtor. (Fred Harvey.)

One 2-horse team, three-fourths day moving camp 10 miles.

August 12, moving camp to Grand View, \$16.

Paid El Tovar Hotel, Grand Canyon, Ariz. September 7, 1907.

F. M. HUMPHREY.

SANTA FE,  
Grand Canyon, Ariz., August 31, 1907.

Received \$2 from R. P. Parker for lumber.

J. M. MILLER.

SANTA FE,  
Grand Canyon, Ariz., August 31, 1907.

Received \$2 from R. P. Parker for water used from railroad company.

J. M. MILLER.

Agent selling original ticket will stamp this in space indicated.

The Atchison, Topeka & Santa Fe Railway Co., Coast Lines.

Receipt for fare paid. Certificate of standard form, joint agency rule. Agents will give receipt on this blank for tickets purchased whenever requested.

Received of Howard Parker, whose signature precedes, four and 50/100 dollars (\$4.50) for one ticket at \$4.50 each, from Williams to Kansas City.

Form No. 20. 216 via Pullman.

Date, September 8, 1907.

HUGO VICTOR, *Agent*.

Architects and Engineers' Supply Company, 1010 Grand avenue, Kansas City, Mo. Sold to H. Pabt, September 11, 1907: One brass plumb bob, at 75 cents, less 15 per cent, 65 cents.

Paid September 12, 1907. Architects & Engineers' Supply Company.

GRANDVIEW, ARIZ., *October 2, 1907.*

*Hand and Shumway, rodman and axman taking topography, to Grandview Hotel (Canyon Copper Company), Dr.*

Board, 1 day, \$3 (2)..... \$6

Received payment October 2, 1907.

GRANDVIEW HOTEL,  
L.

GRAND CANYON, ARIZ., *October 10, 1907.*

Received from R. P. Parker three and 50/100 dollars  $\frac{1}{2}$  saddle horse and trail, one day, \$3.50.

NILES J. CARMERON,  
By P. H. CARMERON.

GRAND CANYON, ARIZ., *October 9, 1907.*

Received from R. P. Parker three and  $\frac{50}{100}$  dollars as refund for fare paid from Williams to Grand Canyon.

\$3.50.

ANDREW SHUMWAY.

GRAND CANYON, ARIZ., *October 9, 1907.*

Received from R. P. Parker Sixty Five dollars in full for use of team and furnishing water during September and October.

\$65.00.

SANFORD ROWE.

GRAND CANYON, ARIZ., *October 9, 1907.*

Received from R. P. Parker Six and  $\frac{75}{100}$  dollars for refund on fare from Prescott to Williams.

\$6.75.

ROBERT W. PIERCE.

GRAND CANYON, ARIZ., *October 9, 1907.*

Received from R. P. Parker Three and  $\frac{50}{100}$  dollars, return fare to Williams.

\$3.50.

PEDRO YANES.

GRAND CANYON, ARIZ., *October 9, 1907.*

Received from R. P. Parker Three and  $\frac{50}{100}$  dollars, return fare to Williams, Ariz.

\$3.50.

GEO. CORNELL.

Express on meat, 35 cents. September 30. J. M. N.

[The Atchison, Topeka and Santa Fe Railway Company, Coast Lines.—Bill of lading.—Original.]

WILLIAMS, *August 1, 1907.*

Received from R. P. Parker, subject to minimum charge, 1 stove (90 pounds), 41 cents.

Paid August 1, 1907.

HUGO VICTOR, *Agent*.



[Freight bill No. 1.]

GRAND CANYON, August 2, 1907.

R. P. Parker, to the Atchison, Topeka and Santa Fe Railway Company, Coast Lines, Dr.

Waybill: Date, August 1; No. and series, 12. Car: Initials, A. T.; No. 69060. From Williams, Ariz. Original point shipment and consignor, B. Bros.

For freight and charges on—	Weight.	Rate.	Freight
	<i>Pounds.</i>	<i>Cents.</i>	
1 sack groceries, 75; 1 tub hardware, 20; 2 boxes groceries, 175; 3 boxes glassware.....	310	46	\$1.43
1 box eggs, 50; 2 boxes dried fruit, 50.....	100	43	.43
1 box crackers, 25; 1 box coal oil, 20.....	25	38	.29
4 crates canned goods, 160; 1 box paste, 10; 1 keg pickles, 25; 1 sack flour, 150; 1 sack sugar, 100; 1 sack spuds, 25; 1 sack onions, 25; 1 sack beans, 25; 1 ———, 5; 1 box ax handles, 10; 1 barrel stove pipe, 20; 1 box hardware..	665	37	2.46
Total charges.....			4.61

Received payment August 2, 1907.

J. M. MILLER, Agent.

[Consignee's receipt.]

GRAND CANYON, August 3, 1907.

Mr. Parker to Wells, Fargo & Company Express, Dr., for transportation from Williams to Grand Canyon, Ariz.

Aug. 3. Boards, weight 200 pounds..... \$2  
Received payment.

J. M. MILLER, Agent.

[Freight bill No. 25.]

GRAND CANYON, August 3, 1907.

P. P. Parker to the Atchison, Topeka and Santa Fe Railway Company, Coast Lines, Dr.

Way-bill: Date, August 2; series 15. Car: Initials, A. T.; No. 29060. From Williams, Ariz. Original point shipment and consignor, S. M. Lbr. Co.

For freight and charges on—	Weight.	Rate.	Freight.
	<i>Pounds.</i>	<i>Cents.</i>	<i>Cents.</i>
4 pieces lumber, 1 x 10-14 and 2 pieces lumber, 2 x 8-14.....	200	37	75

J. M. MILLER, Agent.

[Consignee's receipt.]

R. P. Parker to Wells Fargo & Co. Express, Dr., for transportation from Williams to Grand Canyon.

Date.	Article.	Weight.	Charges.
Aug. 7	3 boxes and 1 sack meat.....	80	\$1.00
Aug. 8	Box hardware—1 kettle, box handle, package tinware.....	60	.90
	Wire cot, sack spuds.....	120	1.25
	Box shoes.....	10	.45
			2.60
Aug. 10	Pa.....	10	.45

Received payment.

J. M. MILLER, Agent.

[ Freight bill No. 45.]

*R. P. Parker, to the Atchison, Topeka and Santa Fe Railway Co., Coast Lines, Dr.*

GRAND CANYON, August 10, 1907.

Waybill: Date, August 8; No. and series, 35. Car: Initials, A. T.; No. 7884. From Williams, Ariz. Original point shipment and consignor, B. Bros.

For freight and charges on—	Weight.	Rate.	Freight.
		<i>Cents.</i>	<i>Cents.</i>
1 sack spuds.....	100	37	37
1 sack hams.....	25	43	11
Total charges.....			48

Received payment, August 11, 1907.

J. M. MILLER, *Agent.*

[ Freight bill No. 64.]

*R. P. Parker, to the Atchison, Topeka and Santa Fe Railway Co., Coast Lines, Dr.*

AUGUST 12, 1907.

Waybill: Date, August 10; No. and series, 40. Car: Initials, A; No. 4844. From Williams. Original point shipment and consignor, P. Bros.

For freight and charges on—	Weight.	Rate.	Freight.
		<i>Cents.</i>	<i>Cents.</i>
1 box groceries.....	30	46	13
1 sack tinware.....	30	46	13
2 sacks barley.....	120	37	44
Total charges.....			70

Received payment, August 15, 1907.

J. M. MILLER, *Agent.*

[Consignee's receipt.]

GRAND CANYON, August 12, 1907.

*S. P. Parker to Wells Fargo & Company Express, Dr., for transportation from Williams, Ariz., to Grand Canyon.*

Aug. 12. Pa.; weight, 10 pounds; 45 cents.  
Received payment.

J. M. MILLER, *Agent.*

[Freight bill No. 112.]

GRAND CANYON, August 20, 1907.

*R. P. Parker to the Atchison, Topeka & Sante Fe Railway Co., Coast Lines, Dr.*

Waybill: August 19; No. and series, 77. Car: Initials, R. D.; No. 3173. From Williams. Original point shipment and consignor, B. Bros.

For freight and charges on—	Weight.	Rate.	Freight.
		<i>Cents.</i>	
2 sacks flour.....			
5 boxes canned goods.....	300	37	\$1. 11
1 sack bacon.....	25	43	. 11
1 box groceries.....	60	46	. 28
Total.....			1. 50

Received payment August 20, 1907.

J. M. MILLER, *Agent.*



[Freight bill No. 163.]

GRAND CANYON, August 27, 1907.

R. P. Parker to the Atchison, Topeka and Santa Fe Railway Company, coast lines, Dr.

Waybill date August 26; number and series, 104. Car initials, A. T.; number, 41001. From Williams, Ariz. Original point shipment and consignor, B. Bros.

For freight and charges on—	Weight.	Rate.	Freight.
1 box crackers, 25; 1 box groceries, 25; 1 sack groceries, 60.....	110	46	\$0.50
1 box evaporated apples, 25; 1 sack sugar, 4 sacks, 100; flour, 200.....	325	37	1.20
Total charges.....			1.70

Received payment August 31, 1907.

J. M. MILLER, Agent.

GRAND CANYON, August 27, 1907.

R. P. Parker to Wells Fargo & Co. Express, Dr.

For transportation of sack meat from Williams, State of Arizona. Waybill No. 214; date, August 26; weight, 40. Our charges, \$0.35. Total, \$0.35.

Received payment.

J. M. MILLER,  
For Wells Fargo & Co., Express.

GRAND CANYON, September 4, 1907.

R. P. Parker to Wells Fargo & Co. Express, Dr.

For transportation of box groceries from Williams, State of Arizona. Way bill No. 221; date, September 3; weight, 156; shipped by B. B. Our charges, \$1.85. Total, \$1.85.

Received payment,

J. M. MILLER,  
For Wells Fargo & Co. Express.

GRAND CANYON, September 4, 1907.

R. P. Parker to Wells Fargo & Co. Express, Dr.

For transportation of sack meat and half case eggs from Williams, State of Arizona. Way bill No. 221; date, September 3; weight, 87; shipped by B. B. Our charges, \$0.70. Total, \$0.70.

Received payment,

J. M. MILLER,  
For Wells Fargo & Co. Express.

GRAND CANYON, September 11, 1907.

Parker to Wells Fargo & Co. Express, Dr.

For transportation of meal. Total, \$0.40.

Received payment,

J. M. MILLER,  
For Wells Fargo & Co. Express.

[Freight bill No. 263.]

GRAND CANYON, September 11, 1907.

R. P. Parker to the Atchison, Topeka and Santa Fe Railway Company, coast lines, Dr.

Waybill date September 10; number and series, 36. Car initials, A. T.; number, 33772. From Williams, Ariz. Original point shipment and consignor, B. Bros.

For freight and charges on—	Weight.	Rate.	Freight.
box groceries.....	30	41	14
1 box prunes, 25; 1 case peaches, 80. ....	105	37	39
Total charges.....			53

Received payment September 15, 1907.

J. M. MILLER, Agent.

GRAND CANYON, *September 7, 1907.*

R. P. PARKER:

13 pounds beef, 12 $\frac{3}{4}$ , \$1.65.

Paid.

HOLMES SUPPLY Co.  
E. S. T.GRAND CANYON, *September 11, 1907.*

R. P. PARKER:

1 can oil, 5 gallons, \$1.85.

Paid. September 11, 1907. Camp J.

HOLMES SUPPLY Co.  
E. S. TUNESON.

SEPTEMBER 4, 1907.

*R. P. Parker bought of Holmes Supply Co.*

1 package oatmeal (5 pounds).....	\$0. 40
3 packages matches.....	. 25
2 packages coffee, 25 cents.....	. 50
	<hr/>
	1. 15

Paid. Camp J.

HOLMES SUPPLY Co.  
Per E. S. T.*R. P. Parker.*

15 pounds sugar, at 7 cents.....	\$1. 05
11 $\frac{1}{2}$ pounds bacon, at 22 cents.....	2. 50
5 pounds corn meal, at 6 cents.....	. 30
	<hr/>
	3. 85

Paid September 15. Camp. J.

HOLMES SUPPLY Co.  
E. S. T.*R. P. Parker.*

20 pounds potatoes, at 4 cents.....	\$0. 80
12 cans condensed milk.....	1. 50
2 soap.....	. 10
	<hr/>
	2. 40

Paid, September 16, 1907. Camp. J.

HOLMES SUPPLY Co.  
E. S. T.*R. P. Parker.*

20 pounds potatoes, at 4 cents.....	\$0. 80
50 flour.....	2. 50
6 milk.....	. 75
2 soap.....	. 10
5 sugar.....	. 40
1 piece bacon, 14 pounds.....	3. 10
5 pounds butter, at 35 cents.....	1. 75
12 pounds beef, at 12 $\frac{1}{2}$ cents.....	1. 50
	<hr/>
	10. 90

Paid. Grand Canyon, September 22, 1907. Camp. J.

HOLMES SUPPLY Co.  
E. S. T.GRAND CANYON, *September 25, 1907.**R. P. Parker.*

5 spuds.....	\$0. 20
2 sugar.....	. 15
1 coffee.....	. 25
	<hr/>
	. 60

Paid. Comp. J.

HOLMES SUPPLY Co.  
E. S. T.



Mr. R. P. Parker, in account with Holmes Supply Company, Grand Canyon, Ariz.

Aug. 26.	1 package oatmeal.....	\$0. 20
	2 pounds sugar.....	. 15
	2 cans milk.....	. 25
		<hr/>
		. 60
		<hr/>
26.	8 pounds bacon.....	1. 75
	3 bottles catsup.....	. 50
	5 pounds raisins.....	. 75
		<hr/>
		3. 00
		<hr/>
Sept. 27.	5 pounds corn meal.....	. 30
		<hr/>
29.	4 pounds coffee, at 25 cents.....	1. 00
	Irish potatoes.....	2. 00
29.	50 pounds potatoes, at 4 cents.....	2. 00
		<hr/>
Oct. 5.	6 cans milk.....	. 75
	3 pounds coffee.....	. 75
		<hr/>
		1. 50

Paid.  
Camp J.

HOLMES SUPPLY Co.  
E. S. T.

GRAND CANYON, October 10, 1907.

R. P. Parker.

Sept. 4.	20 pounds beans.....	\$1. 10
	120 pounds potatoes.....	4. 80
	3 packages matches.....	. 25
	1 package oatmeal (5 pounds).....	. 40
	2 pounds coffee, at 25 cents.....	. 50
		<hr/>
		7. 05

Paid.  
Camp J.

HOLMES SUPPLY Co.  
E. S. T.

Babbitt Bros., Flagstaff, Ariz., sold to R. P. Parker.

JULY, 1907.

		Miscel- lane- ous.	Men's furnish- ings.	Dry goods.	Gro- ceries.	Meat mar- ket.	Hard- ware.	Total.
1	1 bottle salad dressing.....				\$0. 40			
	10 pounds cream cheese.....				2. 25			
	75 pounds wide, at 18 cents.....				13. 50			
	1 2½ pounds pepper.....				1. 00			
	6 ⅛ pepper.....				. 50			
	1 ⅛ cinnamon.....				. 15			
	1 ½ mustard.....				. 15			
	1 ⅛ nutmeg.....				. 15			
	1 ⅛ ginger.....				. 15			
	6 bottles catsup.....				2. 00			
	2 bottles sauce.....				1. 25			
	2 gallons L. C. maple.....				3. 25			
	25 pounds 60/70 prunes.....				2. 50			
	25 pounds peaches.....				3. 75			
	1 case St. Charles milk.....				5. 25			
	1 case corn.....				2. 50			
	10 cases pumpkin.....				1. 50			
	1 case tomatoes.....				2. 75			
	1 case peaches, 2½.....				4. 25			
	1 box maco.....				. 75			
	150 pounds flour, \$3.75.....				5. 63			
	5 packages cream wheat.....				. 95			
	10 packages Ralston oats.....				1. 50			
	10 pounds coffee.....				3. 50			
	2 pounds tea.....				1. 70			
	1 sack sugar.....				6. 40			

Babbitt Brothers, Flagstaff, Ariz., sold to R. P. Parker—Continued.

JULY, 1907.

	Miscel- lane- ous.	Men's furnish- ings.	Dry goods.	Gro- ceries.	Meat mar- ket.	Hard- ware.	Total.
1 keg pickles.....				\$1.35			
1 8-ounce lemon.....				1.00			
1 8-ounce vanilla.....				1.25			
20 pounds white beans.....				1.25			
10 pounds butter.....				3.60			
Matches.....				.25			
Starch.....				.25			
1 package soda.....				.10			
1 gallon vinegar.....				.50			
12 cases kraut.....				1.75			
2 pounds pearl barley.....				.45			
3 pounds tapioca.....				.35			
25 pounds onions.....				1.25			
2 bottles mustard.....				.25			
25 pounds W. C. meal.....				.90			
1 gallon aztec.....				.80			
½ gallon honey.....				.75			
6 3s. salt.....				.50			
1½ dozen Yeast Foam.....				.80			
3 12s. Royal Powder.....				1.20			
Box crackers.....				2.21			
10 pounds lard.....				1.50			
10 pounds dried apples.....				1.25			
16 pounds buckwheat flour.....				.96			
15 pounds rice.....				1.35			
5 gallons pearl, oil.....				1.65			
10 soap.....				.40			
25-pound package beans.....				1.25			\$96.80
2 pounds chili.....				.50			
1 crate eggs.....				6.50			
Dozen candles.....				.25			
25 pounds spuds.....				1.25			8.50
1 rice boiler.....						\$1.90	
2 sets knives and forks.....						1.50	
2 dozen teaspoons.....						.50	
1 dozen tablespoons.....						.45	
1 big spoon.....						.10	
1 big fork.....						.15	
Dipper.....						.10	
2 butcher knives.....						1.40	
1 butcher steel.....						1.50	
2 tin buckets.....						.90	
1 dozen tin cups.....						.50	
Cleaver.....						1.00	
Washtub.....						1.15	
Washboard.....						.35	
2 dish pans.....						1.45	
2 enameled pitchers.....						1.15	
2 glass pitchers.....						.90	
2 bread pans.....						.55	
1 enameled pan.....						.65	
9 tin pans.....						.75	
3 enameled plates.....						.85	
2 tin pans.....						.20	
18 tin plates.....						.75	
2 enameled wash pans.....						1.00	
2 S. B. axes.....						3.50	
1 hatchet.....						1.25	
Nails, 4 pounds 10d., 2 pounds 8d.....						.40	
3 packages tacks.....						.15	
1 alarm clock.....						2.00	
Shells.....						.90	
Lantern.....						1.50	
2 bracket lamps.....						1.30	
2 canteens.....						1.95	
50 feet 5½ rope.....						1.10	
Demijohn.....						.75	
Wall mill.....						.90	
Funnel.....						.10	
2 chimneys.....						.25	
Elbows.....						.60	
2 can openers.....						.30	
						41.85	147.15
Less 20 per cent, hardware.....						8.40	8.40
				105.30		33.45	138.75



Babbitt Brothers, Flagstaff, Ariz., sold to R. P. Parker—Continued.

AUGUST, 1907.

		Miscel- lane- ous.	Men's furnish- ings.	Dry goods.	Gro- ceries.	Meat mar- ket.	Hard- ware.	Total.
5	2 blankets.....	\$15.00						
	Shoes.....		\$7.00					
	1 quilt.....	1.50						
	46 pounds hind beef, at 13 cents.....					\$5.98		
	1 dozen crayons, net.....						\$1.00	\$30.48
8	Boots.....		6.50					
	do.....		6.50					
	118 pounds new spuds.....				\$4.72			
	Fry pan.....						.60	
	do.....						.25	
	1 ax and handles.....						1.75	
	2 axes and handles.....						.70	
	2 stew pots.....						3.00	
	1 2-gallon coffee pot.....						1.60	
	1 1-gallon teapot.....						.80	
	2 flat files.....						.40	
	2 2-gallon canteens.....						2.70	
	1 cot.....						3.25	32.77
9	Pair shoes.....		6.00					
	Quilts.....	4.50						
	Oilcloth.....			\$1.20				
	5 shirts.....		5.00					
	1 suit underwear.....		1.50					
	Blue shirt.....		.75					
	2 barley.....				2.80			
	Allspice.....				.30			
	10 pounds butter.....				3.50			
	Dozen soap.....				.50			
	Dozen F. soap.....				1.00			
	2 hams, 28½ pounds.....				5.13			
	Lemons.....				.30			
	35 pounds hind beef.....					4.90		
	2 flat files.....						.40	
	½ dozen pie plates.....						.35	
	2 pails.....						1.10	
	Punch.....						.15	41.38
17	Lard.....					1.50		
	Bacon.....					5.32		
	Flour, 100 pounds.....				3.75			
	2 cases tomatoes.....				5.50			
	2 cases peaches.....				8.50			
	10 pounds crushed coffee.....				2.50			
	5 pounds baking powder.....				1.90			
	1 case milk.....				4.75			
	2 gallons sirup.....				2.80			36.52
20	(1) 1 sack new spuds.....				3.54			
	25 pounds ham.....				4.75			
	1 dozen engraved cups.....						3.60	
	1 man's saw.....						.50	17.39
	Knives and forks.....						1.50	
	Pans.....						1.00	2.50
30, 26	Crax.....				2.15			
	25 pounds evaporated apples.....				3.00			
	1 sack sugar.....				6.40			
	200 pounds imp. flour.....				7.50			
	20 pounds rice.....				1.80			
	25 pounds pk. beans.....				1.25			
	15 pounds coffee.....				3.75			
	11½ pounds cheese.....				3.45			
	2 pounds Lipton's tea.....				1.70			31.00
	15 pounds butter.....				5.40			5.40
	35 pounds hind beef.....					4.90		4.90
		21.00	35.25	1.20	92.64	22.60	29.65	202.34
	Less 20 per cent.....	4.20	7.05	.24			5.93	17.42
		16.80	28.20	.96	92.64	22.60	23.72	184.92

Paid October 10, 1907.

BABBITT BROTHERS Co.,  
Of Williams.

Babbitt Brothers Company, of Williams, sold to R. P. Parker, G. C.

SEPTEMBER, 1907.

		Men's furnish- ings.	Dry goods.	Gro- ceries.	Meat market.	Hard- ware.	Total.
5,2	2 boxes tacks.....	\$0.20					
	1 shirt.....	2.75					
	6 pairs socks.....	.75					
	1 pair socks.....	.35					
	2 pairs drawers.....	1.50					
	2 shirts.....	1.50					
	2 yards canvas.....		\$1.00				
	Pinones xx pd.....						
	10 pounds rice.....			\$0.90			
	10 pounds br. cheese.....			2.70			
	12 pounds Star.....			5.52			
	10 R. butter.....			3.50			
	2 dozen milk.....			2.90			
	Molasses.....			.90			
	Honey.....			.70			
	4 Heliotrope sirup.....			.90			
	$\frac{1}{2}$ case eggs.....			3.25			
	30 pounds beef, hind quarter.....				\$4.20		
	25 pounds bacon.....				4.75		
	1 cobbler set.....					\$1.25	
	3 packages tacks.....					.15	
	Gr. saucers.....					.75	
	1 box cats.....					.65	\$41.07
10	2 pairs gloves.....	3.50					
	1 pair socks.....	.50					
	3 pairs soles.....	1.35					
	Carbolic acid.....			.25			
	2 cases peaches.....			8.50			
	1 box prunes.....			2.50			
	10 pounds salt.....			.25			
	1 dozen candles.....			.25			
	15 R. butter.....			5.40			
	Pinones.....			.25			
	55 pounds beef, loin.....				7.20		30.45
26	3 pairs $\frac{1}{2}$ soles.....	1.00					
	10 pounds butter.....			3.75			
	1 dozen milk.....			1.25			
	$\frac{1}{2}$ case eggs.....			4.50			
	6 W. S. soap.....			.25			
	12 candles.....			.20			
	38 pounds beef, loin.....				5.32		
	27 pounds ham.....				5.13		
	3 packages hang. nails.....					.25	21.65
		13.40	1.00	48.62	27.10	3.05	93.17
		2.68	.20			.61	3.49
		10.72	.80	48.62	27.10	2.44	89.68

Paid October 10, 1907.

BABBITT BROTHERS Co.,  
Of Williams.





















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